THE LIBRARY

The Ontario Institute
for Studies in Education

Toronto, Canada

LIBRARY
JUL 09 1968
THE ONTARIO INSTITUTE
FOR STUDIES IN EDUCATION

Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

http://www.archive.org/details/educationalrevie02newyuoft

EDUCATIONAL REVIEW

PUBLISHED MONTHLY

Except August and September

VOLUME II

JUNE—DECEMBER

1891

NEW YORK
HENRY HOLT AND COMPANY
LONDON: KEGAN PAUL, TRENCH, TRÜBNER & CO.
BERLIN: MAYER & MÜLLER
PARIS: F. ALCAN
1891

EDITORS:
NICHOLAS MURRAY BUTLER,
E. H. COOK,
WILLIAM H. MAXWELL,
ADDISON B. POLAND.

15436.

COPYRIGHT, 1891, BY HENRY HOLT & CO.

R/370
E247
v.2

INDEX TO VOL. II.

15436

☞The names of contributors are printed in SMALL CAPITALS; subjects treated, in ordinary type; titles of books reviewed, in *italics*.

Action of the Colleges on the Schools, The, 422.
ADAMS, HERBERT B.—American Pioneers of University Extension, 220.
Adams (President), Annual Report of, 499.
ALBRO, S. H.—*Appleton's School Physics*, 193.
American Pedagogical Society, An, 179.
Appleton's School Physics, 193.
Applications of Psychology in Education, 1.
AREY, ALBERT L.—The Use of Text-Books in Teaching Elementary Science, 69.
Arts, The Seven Liberal, 467.
Association, A Statistical Study of Memory and, 442.
Athletics (College) and Heart Disease, 453.
Backus, Truman J. and Brown, Helen D., *Great English Writers*, 398.
BALLIET, THOMAS M.—City School Supervision, 482.
BEMIS, EDWARD W.—*Steele's Rudimentary Economics*, 202.
BLODGETT, JAMES H.—Education in the Eleventh Census Year, 238.
Boutmy, Emil, *Studies in Constitutional Law*, 392.
Bowker, R. R. and Iles, George, *Readers' Guide in Economic, Social, and Political Science*, 93.
Brooklyn, Educational Progress in, 181.
BRYANT, MRS. SOPHIE. — Some Characteristics of a Sound Mind, 100.
Butler, Agnata F., *Herodotus, Book vii.*, 90.
BUTLER, NICHOLAS MURRAY.—*Maher's Psychology*, 82; *Bowker and Iles's Readers' Guide in Economic, Social, and Political Science*, 93; Notes on Recent Pedagogical Literature, 97; *Grasby's Teaching in Three Continents*, 289; *Life and Works of Horace Mann*, 387; *Goodwin's Present and Future of Harvard College*, 388; *The Boston Conference on Manual Training*, 1891, 503.
CALKINS, N. A.—*Miall's Object Lessons from Nature*, 30.
CARPENTER, W. H.—*Kluge's Etymological Dictionary of the German Language*, 189.
Cassell's Map Building Series, 205.
CHAPIN, ANGIE CLARA,—*Butler's Herodotus*, 90.
Checkley, Edwin.—*Natural Method of Physical Training*, 192.
Chicago Exposition, Educational Congresses at, 180; Director of the Department of Liberal Arts at, 276.
City School Supervision, 256, 283, 362, 482.
Clay in Schools, The Use of, 264.
COLLAR, WILLIAM C.—The Action of the Colleges on the Schools, 422.
College Athletics and Heart Disease, 453.
Colleges — Commencements, 79; Shortening of the Course, 80; Policy of the Small College, 313; The Action of, on the Schools, 422.
Colloquy, A Grammatical, 168.
Comegys, Benjamin B., *Primer of Ethics*, 201.
Comenius Celebration, The, 277, 496.
COMPAYRÉ, GABRIEL.—Contemporary Educational Thought in France, 171.
Compulsory Education, Resistance to, 379.
Conference on Manual Training, 503.
Congress at the Chicago Exposition, Educational, 180.
COOK, E. H.—*Dole's American Citizen*, 404.
Cooke, Geo. W., *Guide Book to the Works of Robert Browning*, 85.

Cornell University, Annual Report of the President of, 499.

Cotterill, Jas. H. and Slade, J. H., *Lessons in Applied Mechanics*, 193.

Croll, James, *Philosophical Basis of Evolution*, 284.

CURTIS, MATTOON M.—The Present Condition of the German Universities, 28.

DARMESTETER, T.—School for Oriental Languages at Berlin, 103.

DAVIDSON, THOMAS.—The Seven Liberal Arts, 467.

DAWSON, SIR J. WM.—*Croll's Philosophical Basis of Evolution*, 284.

Deighton, Karl.—*Shakespeare's As You Like It*, 506.

Dewey, John, *Outlines of a Critical Theory of Ethics*, 297.

Director of the Department of Liberal Arts at the Chicago Exposition, 276.

Dole, Charles F., *American Citizen*, 404.

DUNTON, LARKIN.—Practice Teaching in Normal Schools, 261.

ECKOFF, WILLIAM J.—*L'Escuela Primaria en Francia*, 504.

Editorial, 77, 178, 276, 376, 495.

Education, At the International Congress of Hygiene, 376; M. Gréard on, as a Science, 377; in Ancient Greece, 308; in Foreign Periodicals, 100, 207, 303, 406, 514; in the Eleventh Census Year, 238; Literature of, 322; of the Romans, 414; The, of the Will, 57; Lectures on, at the Johns Hopkins University, 498.

Educational, Progress in Brooklyn, 181; Progress in New Jersey, 377; Contemporary Thought in France, 171; Contemporary Thought in Great Britain, 487.

Elementary Science, Use of Text-Books in Teaching, 69, 71.

Emery, Fred. P., *Notes on English Literature*, 293.

English Free Education Act, Full Text of the, 303.

FITCH, J. G.—Contemporary Educational Thought in Great Britain, 487.

FOGLE, M. VIRGINIA.—*Cassell's Map-Building Series*, 205.

Foreign Correspondence, 171, 487.

France, Contemporary Educational Thought in, 171.

Free Education in England, 78, 281, 303, 487.

Gardiner, S. R., *Student's History of England*, 91.

GARNETT, JAMES M.—*Emery's Notes on English Literature*, 293.

GENUNG, JOHN F.—*Nichol's English Composition*, 89.

German Philologists and Schoolmasters, The Annual Meeting of the Association of, 254.

German Schools, Impressions from, 231.

German Universities, The Present Condition of, 28.

GIDDINGS, FRANKLIN H.—*Perry's Principles of Political Economy*, 393.

GILBERT, CHARLES B.—The New School Law in St. Paul, Minn., 372.

Gilman (President) on the Educational Value of Libraries, 380.

Goodwin, Wm. W., *Present and Future of Harvard College*, 388.

GOVE, AARON.—City School Supervision, 256.

Graham, Robert H., *Geometry of Position*, 87.

Grammar Schools, Authoritative Suggestions for, 498.

Grasby, W. C., *Teaching in Three Continents*, 289.

Gréard on Education as a Science, 377.

Great Britain, Contemporary Educational Thought in, 487.

GREENWOOD, J. M.—City School Supervision, 362.

Hancock, John, 178.

HAMMER, KASPAR.—The Annual Meeting of the Association of German Philologists and Schoolmasters, 254.

HANUS, PAUL H.—The New Department of Pedagogy at Harvard University, 252.

HARDY, GEORGE E.—The Function of Literature in Elementary Schools, 140.

HART, ALBERT BUSHNELL.—*Johnston's Shorter History of the United States for Schools*, 396.

Harvard University, The New Department of Pedagogy at, 252.

HERVEY, WALTER L.—*Regents' Bulletin No.* 5, *University of the State of New York*, 201; *Rooper's Apperception*, 390;

Hewitt, W., *Elementary Science Lessons*, 203.

High School, The American, 40, 123.

Hug, Lina and Stead, Richard, *Switzerland*, 83.

Höffding, Harald, *Elements of Psychology*, 501.

HUGHES, JAMES L.—Objective Method of Teaching Elementary Reading, 162.

HULING, RAY GREENE.—The American High School, 40, 123.

HYDE, WILLIAM DE WITT.—The Policy of the Small College, 313.

HYSLOP, JAMES H.—*Dewey's Outlines of a Critical Theory of Ethics*, 297.

Impressions from German Schools, 231.

JACKSON, A. V. WILLIAMS.—*Skeat's Principles of English Etymology*, 294.

JACOBI, MARY PUTNAM.—Applications of Psychology in Education, 1.

Jago, Wm., *Inorganic Chemistry*, 401.

JASTROW, JOSEPH.—*Lloyd Morgan's Animal Life and Intelligence*, 81; Statistical Study of Memory and Association, 442.

JOHNSON, HENRY CLARK.—*Maxwell's Advanced Lessons in English Grammar*, 400.

Johnston, Alex., *Shorter History of the United States for Schools*, 396.

Jones, D. E., *Elementary Lessons in Heat, Light, and Sound*, 298.

Kluge, Friedrich, *Etymological Dictionary of the German Language*, 189.

Laurie (Professor) on Present Educational Problems, 514.

L'Escuela Primaria en Francia, 504.

Liberal Arts, The Seven, 467.

Libraries, President Gilman on the Educational Value of, 380.

Life and Works of Horace Mann, 387.

Literature in Elementary Schools, The Function of, 140.

Literature of Education, The, 322.

LOEB, MORRIS.—*Jago's Inorganic Chemistry*, 401.

LOW, SETH,—Lowell as an Educator, 417.

Lowell as an Educator, 417.

Maher, Michael, *Psychology*, 82.

Mann (*Horace*), *Life and Works of*, 387.

Manual Training Conference (Boston), 503.

Manual Training, The Progress of, 179; in New Jersey, 378.

MAXWELL, WILLIAM H.—Teachers' Salaries, 73; The Use of Clay in Schools, 264; *Peterman's Elements of Civil Government*, 299; The Literature of Education, 322; *Thwaites's The Colonies*, 398; *Backus and Brown's Great English Writers*, 398; *Norris's Scott's Marmion*, 506; *Deighton's Shakespeare's As You Like It*, 506.

Maxwell, William H., *Advanced Lessons in English Grammar*, 400.

Medical Course at the University of Pennsylvania, 178.

Memory and Association, A Statistical Study of, 442.

Methods of Teaching Elementary Reading, Objective, 162, 474.

Morgan, C. Lloyd, *Animal Life and Intelligence*, 81.

Miall, L. C., *Object Lessons from Nature*, 301.

MURRAY, J. CLARK.—The Education of the Will, 57.

MYERS, PHILIP VAN NESS.—*Gardiner's Student's History of England*, 91.

National Educational Association, The, 178, 277, 278, 495.

New England Association of Colleges and Preparatory Schools, Annual Meeting of the, 384.

New Jersey, Educational Progress in, 377.

New York Council of School Superintendents, Annual Meeting of the, 381.

Nichol, John N., *English Compositions*, 89.

Normal Schools, Practice Teaching in, 261, 283, 366, 477.

Norris, Mary H., *Sir Walter Scott's Marmion*, 506.

Notes on Recent Pedagogical Literature, 97.
Oliver, Wait and Jones's *Treatise on Trigonometry*, 195.
PANCOAST, HENRY S.—*Thurber's Essays on Macaulay*, etc., 511.
PARKER, FRANCIS W.—The Objective Method of Teaching Elementary Reading, 474.
PAYNE, WILLIAM H.—Practice Teaching in Normal Schools, 366.
Pedagogy, The New Department of, at Harvard University, 252.
Perry, Arthur L., *Principles of Political Economy*, 393.
Peterman, A. L., *Elements of Civil Government*, 299.
Pioneers of University Extension, American, 220.
POLAND, ADDISON B.—*Shakespeare's Comedy of the Merchant of Venice*, 94; *Checkley's Natural Method of Physical Training*, 192; The Science *versus* the Art of Teaching, 270; *Tilden's Commercial Geography*, 508.
Policy of the Small College, The, 313.
Politics and Education, 497.
Practice Teaching in Normal Schools, 261, 283, 366, 477.
Pratt, Charles, 183.
PRINCE, JOHN T.—Impressions from German Schools, 231.
Proletariat in Germany, The Educated, 412.
Psychology, Applications of, in Education 1; and Pedagogy, The Relation between, 309.
Reading, The Objective Method of Teaching Elementary, 162, 474.
Regents' Bulletin No. 5, *University of the State of New York*, 201.
Regents' Examinations in the State of New York, Recent Changes in, 368.
Religious Instruction in State Schools, 105.
Reviews, 81, 186, 284, 387, 501.
RICHARDS, CHARLES R.—*Sutcliffe's Handcraft*, 96.
Rooper, T. G., *Apperception*, 390.
ROOT, OREN.—*Oliver, Wait and Jones's Treatise on Trigonometry*, 195.
Round Table Conferences, 79, 277.
RUSSELL, E. H.—Practice Teaching in Normal Schools, 477.
SAFFORD, TRUMAN H.—*Stewart's Plane and Solid Geometry*, 512.
SANFORD, FERNANDO.—The Use of Text-Books in Teaching Elementary Science, 71; *Jones's Elementary Lessons in Heat, Light, and Sound*, 298.
Saratoga for 1892, 495.
SARGENT, DUDLEY A.—College Athletics and Heart Disease, 453.
School, for Oriental Languages at Berlin, 103; Recent Legislation in the United States, 151; of the Future, 102; Supervision, City; 256, 362, 482; Schools of Technology, The Place of, in American Education, 209; German Schools, Impressions from, 231.
SCHURMAN, J. G.—*Höffding's Psychology*, 501.
Science, Elementary, 69, 71; Is Elementary Science Teaching a Failure? 279.
Science *versus* the Art of Teaching, The, 270.
SEELYE, JULIUS H. — *Comegys's Primer of Ethics*, 201; *Duty: a Book for Schools*, 404.
Seyffert, Oscar, *Dictionary of Classical Antiquities*, 290.
Shakespeare, *The Merchant of Venice*, 94.
SHAW, WILLIAM B.—Recent School Legislation in the United States, 151.
SHIPMAN, PAUL R.—A Grammatical Colloquy, 168.
Shortening of the College Course, 80.
Sihler, E. G., *A Complete Lexicon of the Latinity of Cæsar's Gallic War*, 509.
Skeat, W. W., *Principles of English Etymology*, 294.
SMITH, A. TOLMAN.—Teachers' Salaries and Pensions, 335.
SMITH, WILLIAM B.—Twelve *versus* Ten, 347.
Snyder, Henry, *Sihler's Lexicon of the Latinity of Cæsar's Gaelic War*, 509.
Socratic Method, The, 406.
Some Characteristics of a Sound Mind, 100.
SPALDING (Bishop), J. L.—Religious Instruction in State Schools, 105.

Steele, Geo. M., *Rudimentary Economics*, 202.
Stewart, Seth T., *Plane and Solid Geometry*, 512.
St. Paul, Minn., The New School Law in, 372.
Supervision, City School, 256, 362, 482.
Sutcliffe, John D., *Handcraft*, 96.
Teaching University for London, A, 282.
Thurber, Samuel, *Essays of Macaulay*, etc., 511.
THURSTON, R. H.—*Cotterill and Slade's Lessons in Applied Mechanics*, 193.
THWING, CHARLES F.—*Seelye's Duty*, 404.
Tilden, John N., *A Commercial Geography*, 509.
Training College for Teachers at Oxford, A Proposed, 207.
Unethical Education, 310.
Universities, The Present Condition of the German, 28; Universities and Professional Education, 77; A Teaching University for London, 282.
University Extension, American Pioneers of, 220.
University for London, A Teaching, 282.
Use of Clay in Schools, The, 264.
VENABLE, CHARLES S.—*Graham's Geometry of Position*, 87.
WAGGENER, LESLIE—*Cooke's Guide Book to the Works of Robert Browning*, 85.
WALKER, FRANCIS A.—The Place of Schools of Technology in American Education, 209; on American Scientific Schools, 276.
WATKINS, ALBERT B.—Recent Changes in the Regents' Examinations in the State of New York, 368.
WHEELER, BENJAMIN IDE.—*Seyffert's Dictionary of Classical Antiquities*, 290.
White, Greenough, *Philosophy of American Literature*, 186.
Will, The Education of the, 57.
WILLIAMS, STEPHEN G.—*Hug and Stead's Switzerland*, 83.
WINCHESTER, CHARLES F.—*White's Philosophy of American Literature*, 186.
WILSON, WOODROW.—*Boutmy's Studies in Constitutional Law*, 392.
Women as Teachers, 358.
WOODHULL, JOHN F.—*Hewitt's Elementary Science Lessons*, 203.
Zubiaur, J. B., *L'Escuela Primaria en Francia*, 504.

EDUCATIONAL REVIEW

JUNE, 1891.

I.

APPLICATIONS OF PSYCHOLOGY IN EDUCATION.

Professor Royce, in a most suggestive paper, recently published (EDUCATIONAL REVIEW, I: 15, 121), has observed that what the teacher has first and chiefly to gain from the study of psychology, is the psychological spirit; that is, the love and the skill that are required for the purposes of mental diagnosis. The teacher should be a naturalist, in the habit of observing the mental life of children for its own sake. "It is in this fashion that naturalists always have to work. What is here in this live thing? Why does it move thus? What is it doing? What feelings does it appear to have? What type of rudimentary intelligence is it showing? Ask such things not because they will give you a systematic theory, but because they will help you to form the habit of watching minds." This is admirably said. But it is not quite all that is necessary; for the teacher is not only an observing naturalist. He is an agent appointed to solve problems, to produce effects on a living organism, to modify forces, which begin by being psychological, but end by being social.

One way of stating the problem is the following: "The child must be developed into an harmonious organism." This formula is more ambiguous than it sounds. For an organism implies a medium, and the medium in which the psychic organism of the child is to live consists of ideas. Harmony of the organism, therefore, means its adjustment to ideas. But ideas also constitute integral parts of this mental organism. Therefore harmony means adjustment of internal ideas, or those existing in the mind, to external ideas, or those existing in the social mind, or imposed by the constitution of things. But again, all ideas are not accessible to all minds ; and therefore minds do not live in the same media, but are often in worlds widely remote, even when the bodies of these minds are in close propinquity with one another. Each mind selects, creates, the world in which it is to live. And conversely, all the events which have transpired in the history of the world are but the outward realization of ideas which have been associated with brains like these. Despotisms, wars, revolutions, pyramids, crusades, inquisitions, cathedrals, dynasties, religions, sciences—all are only projected thoughts. Of what fearful importance is it, then, to know what thoughts shall spring up in the growing brain, and, if possible, how to modify their nature and their sequence !

The problems of psychology and education are so interesting, and their points of contact so numerous, that for a brief discussion it is equally necessary and difficult to make a choice. I will make this choice in favor of the theme which is most prominently forced upon the attention of all teachers. This is the process by which a child acquires the knowledge which it is the business of the teacher to impart. I may state this subject in the form of a definite problem, as follows :

Given, a child with a small amount of knowledge spontaneously acquired, to increase his knowledge in directions where spontaneous activity would not suffice for the acquisition. Knowledge of a thing out of the mind constitutes an idea in the mind. Therefore, the problem of imparting knowledge to the child may be stated as the problem of exciting or generating ideas in the child's mind.

I do not propose to discuss this problem exactly from the practical point of view. Nor have I to suggest any very new methods of practical instruction. I desire rather to inquire into the principles which underlie methods already in operation. For as soon as we examine into the matter a little, we find that some of the most commonplace tasks of the school involve processes which are complex, intricate, and to a considerable extent mysterious. A sense of this intricacy and this mystery cannot, of course, directly tell the teacher how to solve the educational problem, but it may, nevertheless, often guide him insensibly to principles which will prove fruitful for this solution. At all events, the theoretical discussion is interesting for all who care, not only that a thing should be done, but that the how and wherefore of the doing should be understood.

The child who is patiently or impatiently waiting to be taught, has a brain which, in some mysterious manner, functions during the process of learning. He is expected to remember what has been told him, and must do so in accordance with the laws of memory ; and when he forgets, it is probable that these laws have been thwarted or violated. The knowledge spontaneously acquired before the child is old enough to go to school, chiefly concerns sensible objects ; and the laws of the formation of sense perception become, therefore, of the greatest importance to the teacher. This is true, not only for this earliest knowledge, but also because a large amount of all subsequent knowledge continues to consist of material furnished by the senses, and because, also, these sense perceptions constitute the type and model, if not the origin, of all subsequent ideas. And when we find that all thoughts are blent with feelings and volitions ; that the mind acts as a unit, and not as a bundle of separate faculties ; then as we try to interest the child in a subject by kindling his feelings, or by employing his restless energies in some active work, we can remember that there is a philosophical basis for such a method, that the latter is not a mere practical device for making study agreeable and the child less rebellious, but that it is grounded in the deepest nature of the mind and brain.

Let me return now to my original proposition : "The problem of imparting knowledge means the problem of generating ideas in the child's mind." Therefore, we must point out at once that it does not mean simply presenting a verbal statement to the child, and requesting him to learn this by heart. Such a procedure is inadequate, even if, as is by no means always the case, some pains be taken to inquire if the child can define all the words and terms used in the statement. For while different verbal sentences resemble each other, the facts they imply may be widely different; so that their apprehension by the child's mind becomes a different process in each case. To overlook this is to fall into a cardinal fallacy, only too often immanent in the teaching of children. Then the child, instead of coming under the discipline of several kinds of knowledge and mental work, is submitted to only one kind; the work, namely, of memorizing sentences.

What has been just said will be rendered clearer by considering four different pieces of information which easily might, in ordinary school curricula, be presented to the child on the same day. Let these be, for instance: (1) The properties of a wooden cube; (2) the contour of the north shore of Long Island Sound; (3) the date of the landing of the Pilgrims; (4) the relation of the subjunctive mood to the indicative. Before the child could really know these things, he must have experienced four different kinds of thoughts or phases of consciousness. For the knowledge or idea of a cube depends on an immediate sense perception. The knowledge of the north shore of Long Island Sound involves a mediate sense perception, an idea of relations in space actually existing but not actually perceived, but only conceivable. The date of the landing of the Pilgrims is a knowledge of relations in time. Knowledge of the subjunctive mood is knowledge of relations between ideas. How are we to generate in the child's mind these four different kinds of ideas? How are we to introduce them among the ideas which already exist in his mind, and make up the content of his consciousness? What occurs when the child has a perception of an external object? What when he tries to conceive of an object which he will never be able to see? How does his idea of a time-relation differ from that of his idea of space? And how can such an idea be acquired about a time of which he can have no personal experience? Finally, how is it possible to make a child conceive of relations which are neither of space nor time, but which only exist between ideas; and these not ideas which have arisen in his own mind, but which belong to a mental experience widely remote and different from his own?

The answer to these questions implies some theory of the nature of the mind and some doctrine of the generation of ideas. Is the mind a product of the brain, and can we excite ideas in the mind by direct action on the brain? Or is the brain the organ of the mind, and can we influence the processes in the brain by means of ideas? To what do our words appeal when we communicate with the child by means of language? Do external objects affect the senses irresistibly, and in a fixed proportion to the intensity of the stimulus they afford? Or does the mind select for its own purposes from among the mass of material soliciting its senses? Do ideas simply stream through mind in an endless succession? Or do they associate into groups according to some principle of organic cohesion? Upon these difficult questions I may touch just sufficiently to find some general background of thought which will be useful in the teacher's practical work.

The first suggestion, that the mind is the product of the brain, is adopted, though unconsciously, by many persons who would not call themselves materialists. It is really held by all those who think any special care or strenuousness in mental education to be unimportant, and who believe that if the physical health of children be properly provided for, intellect and character will develop spontaneously in any desired direction. Obviously the persons holding such opinions are much more often parents than teachers. But, even when we have secured the most vigorous nutrition and circulation of the brain, we are entirely unable to foretell what kind of processes will take place in it. The healthiest brain may originate the feeblest thoughts, and conversely powerful mental processes may be sustained by brains of frail physical power. Apart from strength or feebleness, we are still less able to say what kind of thoughts or ideas will be manifested in connection with the brain processes (unknown to us) which do occur. We can make a muscle contract, and produce a given movement; we can so stimulate a gland as to secure a given secretion; but, even when we are able, as we occasionally are by drugs and other agencies, to stimulate the brain, we are as far as ever removed from producing a given thought or given train of thoughts. The only means at our command for exciting a thought, is that of appealing to thoughts previously existing. If it be true, that whenever thoughts arise in consciousness, some nerve process is simultaneously sustained in the brain, we must infer that we are able to excite this physical process in the brain by awakening an idea, though we are quite unable to awaken an idea by any direct excitation of a brain process. Thus, whatever may be its ability in other respects, the materialistic doctrine is quite useless for the purposes of education. Nevertheless, we are constantly compelled to remember the close connection and inter-action of psychical and physical activities. These may be merely double forms of one fundamental activity; or, really and fundamentally they may be different, but the fact of their ncessant mutual influence is obvious both to our consciousness and to our observation. A headache or an indigestion may blur our thought, or a quickened circulation stimulate it to activity and a groundless sense of pleasurable being. But there are also thoughts which can stop the pulse, and blanch the cheek, and make the very sun turn pale.

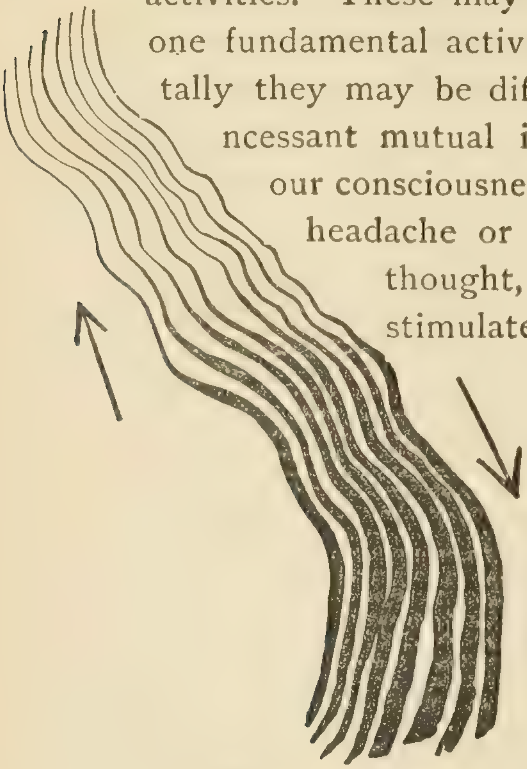


Fig. 1.

I have represented the formula which expresses our simple consciousness in this matter, in the diagram [Fig. 1]. It consists of a series of wavy lines, of which the lower, darker part may be taken for the physical activities; the upper, lighter part for the psychic or mental activities. The arrows show that these waves are constantly passing both from below upward and from above downward; bodily conditions influencing the mind; mental conditions influencing the health and physical development.

I have endeavored to illustrate several definitions of mind by

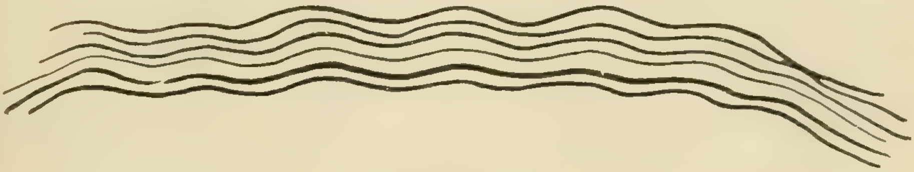


FIG. 2.

means of diagrams. Fig. 2 illustrates Hume's theory that "the mind is the sum of its thoughts." It shows a succession of waves endlessly following each other in a stream of thought,[1] and whose sum taken together makes up the totality of consciousness. Fig. 3 is borrowed from Professor James, being the diagram given by him to illustrate his definition. He observes that each thought represents a cross section in the stream: he calls it a pulse of thought, or consciousness.

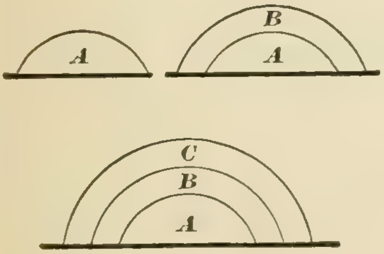


FIG. 3.

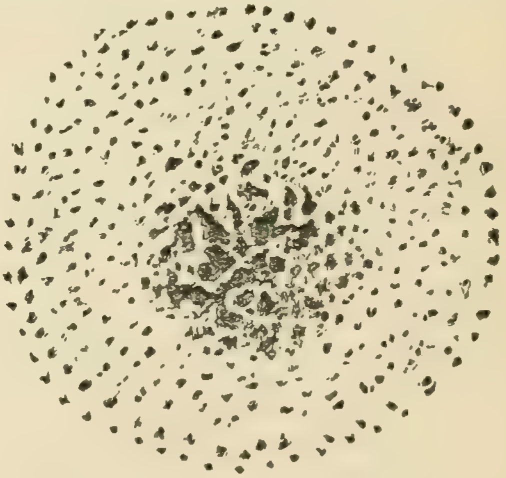


FIG. 4.

Fig. 4 is intended to show Spencer's theory that "the mind is a circumscribed aggregate of activities; and the cohesion of these activities, one with another, throughout the aggregate, compels the postulation of something of which they are the activities." Here also is an aggregate or sum, as shown by the cluster of dots. But these do not stand simply for phases of consciousness, or conscious thoughts and feelings, but include with these, forces and tendencies, of which many may be for a long time below the threshold of consciousness. The term activities includes, therefore, thoughts, feelings, volitions, tendencies, all that makes up the character of the mind, its behavior to external things, and its internal horizons and content. I have no diagram to illustrate the definition of Volkmann, namely, that ideas are successive states of an underlying substance, the mind.

---

[1] Professor James's expression accords perfectly with Hume's theory, though he adds to it various details.

These diagrams show distinctly, I hope, that when we approach a child's mind for the purpose of conveying to it some information, we approach groups or clusters of ideas which at each moment are unified into consciousness.

One way of stating the fundamental problem of education is the following: Education aims to enlarge the periphery of consciousness in proportion to the central nucleus; it aims to make disinterested ideas predominate over central egotisms. The peripheric rim of consciousness is enlarged by multiplying the number of thoughts in it, by increasing their recurrences, by suffusing them with feeling, and by quickening them with volition. Contrast the consciousness of the individual to whom the thought of the battle of Marathon, for instance, has become a felt experience, with another to whom the description of the battle, if heard, would remain only a form of words. In the first case, the peripheric rim of consciousness becomes enriched with a new element, and repeated recurrence of such elements or thoughts would give this part of the conscious cluster a density, and therefore a force, comparable with that of its organic nucleus. In the second case the intellectual periphery remains unaffected, and when it long remains so, it tends to atrophy and shrivel, to shrink to a mere membrane, thinly covering the primitive personality. The whole being becomes a mere self of instincts; no disinterested thoughts remain in it. Fig. 5 shows how the cluster which represents consciousness at any given moment, arises out of the moments which precede this. Fig. 5 is a cylinder, of which Fig. 4 is a cross section. The mutual relations of the center and periphery are the same in both.

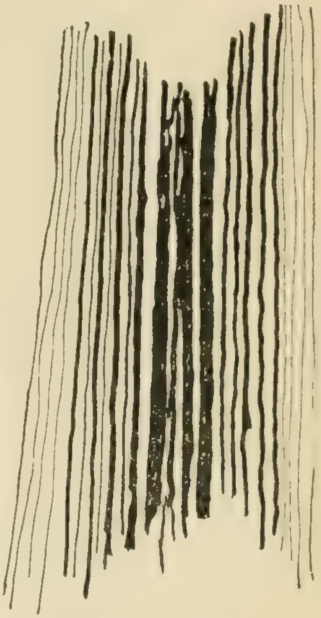


Fig. 5.

There remains another diagram which can be made useful in educational thinking, and which is intended to illustrate a definition given by Professor James: "The mind is the medium upon which the manifold processes in the brain combine their effects." This formula I have illustrated by a diagram of a storage battery charged from a group of galvanic cells [Fig. 6]. The four large cells, which constitute the storage battery, stand as the symbol of the mind; the group of smaller cells, generating the electricity by chemical action, represent the manifold processes in the brain. The same diagram might be used to symbolize the relations of the manifold processes in the general nervous system, to the brain, which certainly stores these up, and in so doing becomes a reservoir of force. Thus the manifold impressions to which the child is subjected are constantly being unified in the brain, and, by their accumulation at this focus, are serving for the generation of force.

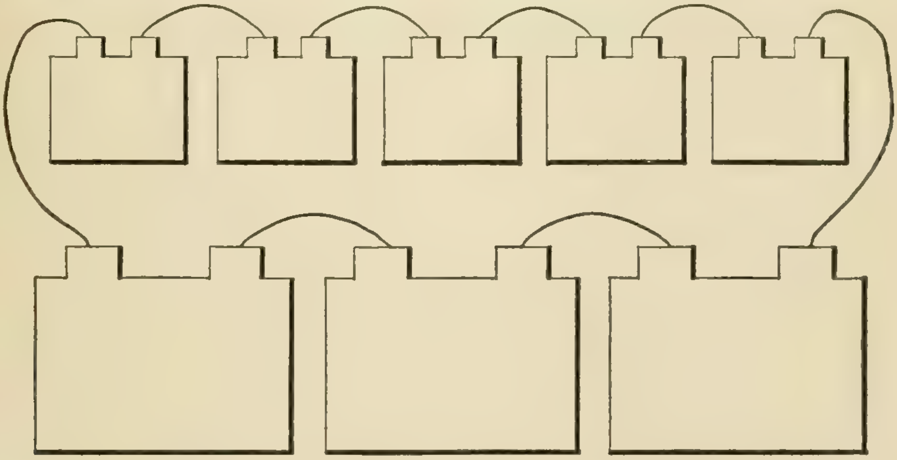


Fig. 6.

To secure an abundant generation of force is the second fundamental aim of education. *The great method in nature for the generation of force is the concentration, in as narrow* *an area as possible, of impressions derived from a very wide area.* The most striking—I might say the most tremendous—illustration of this method is furnished by the germ cell. Here an enormous amount of antecedent impressions, tendencies and potentialities, physical, mental, and social, are concentrated upon a point of matter just barely perceptible. A correlatively immense amount of force is produced, sufficient indeed to sustain the germ throughout its entire career of development [see Fig. 7]. Thus the more completely the child's mind unifies the impressions impinging on it, the more mental power results. Conversely, when impressions, though multiple, are not unified, but impinge on the mind in a fragmentary, desultory mass, then no single thought results, and power fails to be generated.

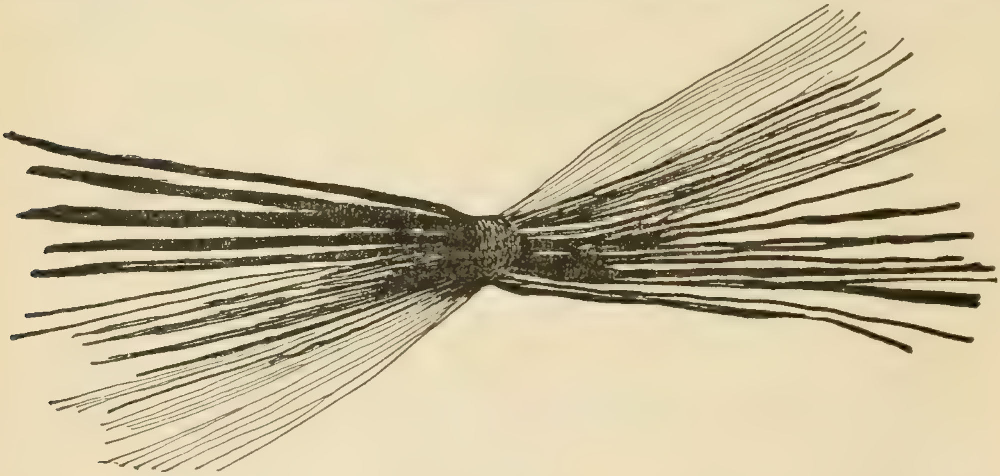


FIG. 7.

This statement may be paraphrased in terms of brain processes thus: Every thought or activity of consciousness is associated with the excitation of some tract of nerve-tissue in the brain. The fusion of such thoughts into a single conception implies that diffused cerebral excitations have been converged into a single massive impulse, which corresponds to the activity of the brain in its totality.

If we analyze the first piece of knowledge which we are imparting to the child—the properties of the wooden cube—we shall encounter three grades of fusion. In the first grade rays of light from the cube are brought to a focus at a certain part of the retina, the point of distinct vision, called the macula lutea or yellow spot. This focusing necessitates fixation of the eyes by a voluntary effort on the part of the child—effort which constitutes his first act of attention. After this has been effected, color impressions from the retina are transmitted to the brain, and together with them, other impressions from the muscles employed in the fixation of the eye, and in the successive fixations required to bring successive segments of the cube's outline at the ocular focus. There is a certain area of the brain, on its posterior or occipital lobe, known as the visual center, whose excitation seems essential to the act of vision. It is probable that the two sets of impressions I have mentioned as arising from the eyes, meet at this visual center and there fuse together. This is the second grade of fusion, and results for the first time in a distinct perception of the object, the cube. The fusion of rays in the retinal image took place below the level of consciousness. The perception rises just above that level. In other words, the first thing of which the child is conscious in regard to the cube is that he perceives it. This perception constitutes a new thought or phase of consciousness. [See Fig. 8.]

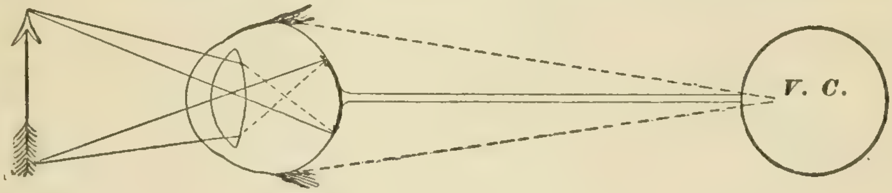


FIG. 8.

In a third grade of fusion, perceptions of individual objects are combined into the concept of a class, or a number of simple ideas, or propositions, are combined into a complex conception. Where, however, this third combination takes place, we do not at all know.

Upon the basis of the facts above mentioned, the following proposition may be constructed: When the brain processes involved in visual perceptions—as of the wooden cube—have been frequently repeated; when they have been associated with brain processes involved in tactual perceptions of the same cube; when these perceptions and processes excited by the cube have coexisted with perceptions and processes excited by other objects, and revived by memory in consciousness for comparison; then a state of consciousness is aroused which may be called an internal perception. This is a single pulse of thought, but it embraces, as objects, the multiple details of the previous states. They therefore may be said to be unified in it.

It is possible that this internal perception of self-consciousness, this single pulse of unifying thought, corresponds to a total excitation of the brain. And that is why injury of any part of the brain, and even of a very limited part, is liable to be followed by a defect of consciousness, or even by its total loss. What is important to remember is, the necessity that perceptions should in some way converge upon a focus in order to originate a definite conception in consciousness, and that this focusing process seems to be a continuation of those already described at the retina and at the visual center of the brain. The two lower processes of focusing I have illustrated in the diagram [Fig. 8]. The two other processes I have left unillustrated, because of the profound mystery which surrounds them; mystery which it is not well either to belittle or slur over with cheap explanations.

When ideas are to be combined in a single conception, we can always combine statements into a single proposition, and express this graphically in a diagram. All the diagrams I have used to illustrate my own propositions serve, I hope, to show this fact. In addition, I will present a few more designed for purposes of specific school instruction. Thus Fig. 9 condenses,

1. Molar motion of percussion generates molecular motion that we call heat.

$$M \Rightarrow \begin{array}{c} m\ m \\ \\ m\ m \end{array} = H \left.\vphantom{\Big|}\right\} P$$

2. Molecular motions of chemical action constitute heat, and have a mechanical value, *i. e.*, in reference to molar motion or masses.

$$\text{C. A.} \begin{array}{c} m\ m \\ \\ m\ m \end{array} \Rightarrow \begin{array}{c} m\ m \\ m \\ m\ m \end{array} \Rightarrow M$$

FIG. 9.

under a single visual symbol, several propositions in physics. In Fig. 10 an apparently reverse process is followed. A single proposition is taken, and shown to be in fundamental agreement with several other propositions, which to superficial inspection seem widely removed. This is the proposition. Electricity flows from a body of high potential, into a body of low potential. These propositions all condense into this single conception : Differentiation passes into equilibrium, and during the transition, force is evolved.

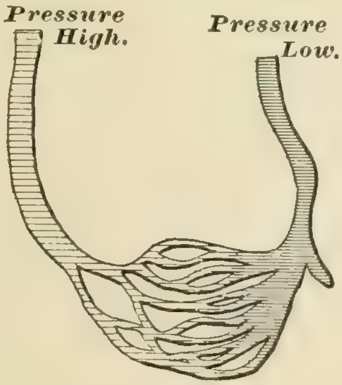
This brief suggestion of a method whereby all items of knowledge are constantly being fused into single concep-

DIFFERENTIATION. EQUILIBRATION.

Water on Hill —

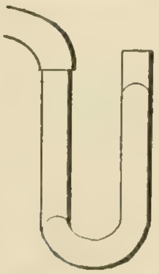
ENERGY OF POSITION.

AT LOWEST LEVEL.

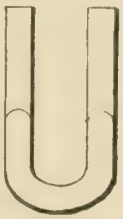


CIRCULATION.

EQUAL PRESSURE—CIRCULATION ARRESTED.

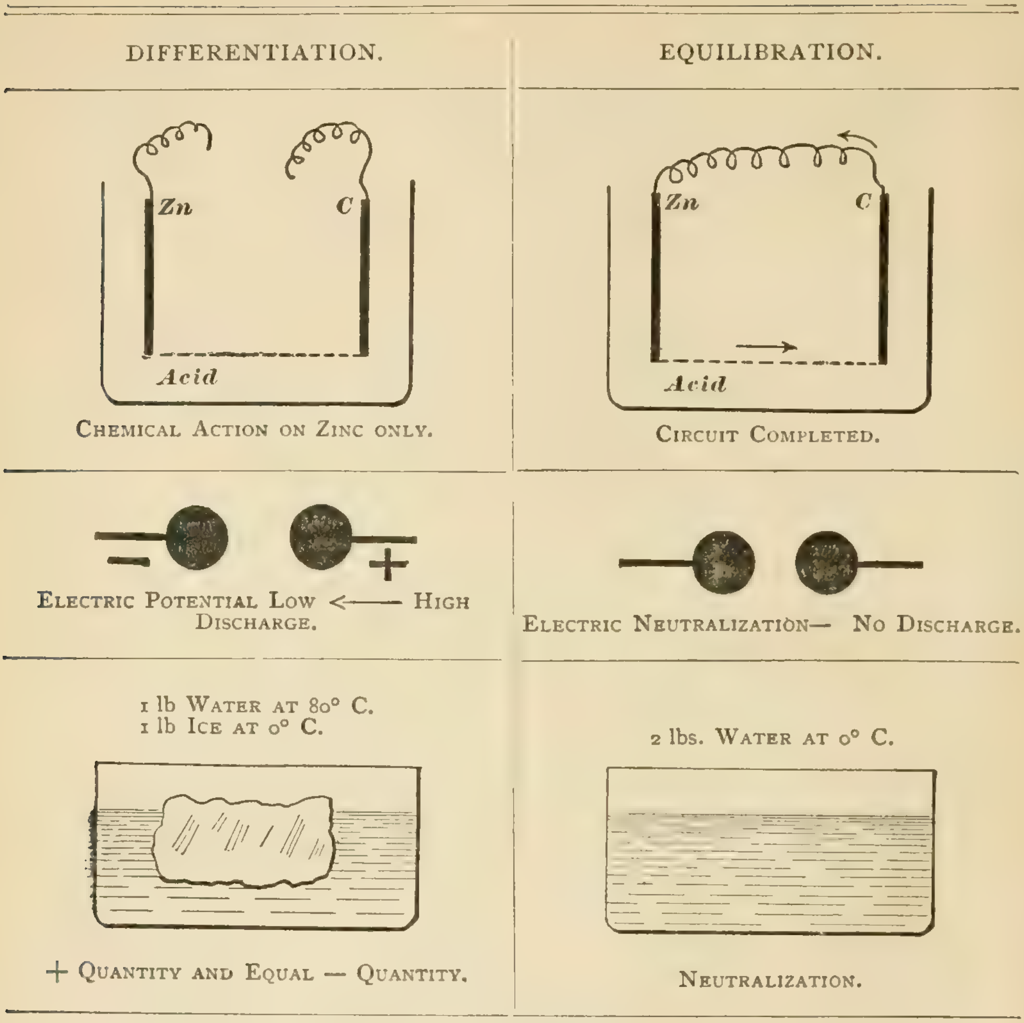


MANOMETER COMMUNICATING WITH COMPRESSED AIR.



EQUAL PRESSURE.

FIG. 10.



CHEMICAL ACTION ON ZINC ONLY.

CIRCUIT COMPLETED.

ELECTRIC POTENTIAL LOW <—— HIGH
DISCHARGE.

ELECTRIC NEUTRALIZATION— NO DISCHARGE.

1 lb WATER AT 80° C.
1 lb ICE AT 0° C.

+ QUANTITY AND EQUAL — QUANTITY.

2 lbs. WATER AT 0° C.

NEUTRALIZATION.

FIG. 10.—*Continued.*

tions, is radically opposed to much prevailing custom. Habitually a dozen fragments of knowledge are presented to the child in as many different text-books, and are liable to remain in his mind as isolated, fragmentary, and lifeless, as are the scattered bones in the valley of Jehoshaphat. How often is a child expected to study separately, reading, writing, spelling, composition, definitions, elocution, synonyms, rhetoric, etymology, Latin, French, and English grammar, mythology, history, and geography! The essentials of these subjects,—indeed for many of them, all that the child needs to know,—might be obtained from the penetrating study of a page of Livy or of Cornelius Nepos.[2] In such a study, these different subjects would fall into place as the naturally related parts of a complex whole, the whole being the narrative given by the Latin author. The processes of distinct mental perception are closely modeled upon those of visual perception. An idea, like an object, must be apprehended either as an independent whole, or as a part occupying a relative position in a whole. The cube is perceived by the child as an independent whole object: the surfaces and angles of the cube are seen as its parts, and as such are comprehensible and interesting. Should we, however, attempt to abstract the surfaces and angles from the individual cube, and present these to the child to be studied, we should probably entirely fail to awaken in him any mental reaction whatever. A cube is a solid object; before looking at the cube, he had previously accumulated a stock of experience about solid objects, and to this the new experience of the cube can be referred. But of isolated surfaces and angles, he has no glimmer of previous experience; he has never been conscious of such things apart from solid bodies, and for a long time it would be useless to try to call his attention to them. When we apparently do so by drawing lines on paper, we simply transfer the attention to another whole object, this time a flat piece of paper, which can then be compared with the cube.

---

[2] While these pages are passing through the press, I am informed that the suggestion in the text is very similar to a fundamental principle of the Herbartian school

There is a similar waste of effort in directing a child to the mass of details, which must seem unrelated to each other until some whole is understood. The aspect of the case entirely changes when the spelling, grammar, etc., are taken up as merely subsidiary to a comprehensible purpose, that namely of understanding the Latin narrative. Something happened, that is history. It necessarily occurred in a definite locality, which can only be appreciated by geographical notions. The narrative cannot be understood except by understanding the words, grammatical construction, and style of the Latin language. This involves an incessant, though incidental, comparison with

of pedagogics. Never having had an opportunity to study this system, the fact that the same idea has occurred to me independently, shows how naturally it arises from the unbiased consideration of the nature of things.

at least two other languages, English and French. Spelling, writing, so-called etymology and pretended synonyms of these words, the art of composition, the ethical and even religious ideas incidentally touched upon in the narrative, can similarly be studied under the stimulus of a distinct definite purpose, that, namely, of making the narrative clear in all its parts—of transforming it into an internal perception.

The process of unifying such a mass of details into a single thought is attended by generation of mental force. This is shown in several ways. In the first place, as any one may be convinced who examines his own consciousness, the work of combining several ideas into one is always attended by a sense of invigorating effort. Even such elementary combinations of ideas as are needed to make a single verbal statement is attended by a sense of some degree of exerted power, which increases with the complexity of the combination and with the terseness of its verbal expression. The feeling closely resembles that which is experienced after effective muscular exercise.

The generation of force is also shown by the fact that all acquisitions of ideas, as all processes of combination of ideas into higher concepts, involve acts of conscious volition. We have seen that the first step in acquiring knowledge about the cube was an act of voluntary attention, in which the child fixed the object with his eyes. Each successive step in the process of learning demanded a new act of attention, new adjustments of the eyes and hands, by means of which the different properties of the cube might be seen and handled more minutely. Through these successive acts of attention, the senses become sensitive to more delicate degrees of difference. The relation between the stimulus and the sensation is removed to a different scale. For the same degree of stimulus there is an increasing quantum of sensation ; or there is the same quantum of sensation for a diminished degree of stimulus. The trained or attentive eye perceives details entirely overlooked by the unprepared or inattentive observer.

What is this mysterious act of attention, which thus changes the whole relations of the child to the external world? Mr. Sully will have it that there is no mystery in the case. "Attention," he says, "is simply detention in consciousness." But what is it that commands and effects the detention, that says to the idea, "Stay!" and it stays, instead of passing at once to be lost in the stream of thought? The detention is always determined by the condition of the previous consciousness.

Thus, in a being previously only conscious of sensations, as a baby, or a dog, it is necessary, in order to call attention, to increase the strength of the sensory stimulus. A bright or moving object will be perceived where a dull or motionless one will not. So we move a bright colored ball before the eyes of the baby, or throw a stone before a dog. In the child, older and accustomed to obey, the command of the teacher is sufficient; the expectant idea of something to happen suffices to dominate consciousness, and to inhibit trains of thought irrelevant to the matter demanding attention—that is, the cube. In two other cases, the child's attention may be fixed spontaneously, and in a way identical with that which must be followed in adult life. The child may wish to use the cube as a building block, and will then attentively examine its shape and angles, to see if these will suit his own purpose; or, knowledge of a wooden cube having been previously acquired, he may examine a glass cube from simple curiosity to see how far the properties of the new, and generally resembling object, may agree with those of the one previously known. In the first case the idea of an expectant purpose detains the cube perception in consciousness. A more extensive volition directs the voluntary act of attention. In the second case the attention is commanded by a feeling, the feeling of intellectual curiosity about the relations of things. This feeling serves to detain in consciousness the perception of the cube. Thus either desire or will are essential to the acts of voluntary attention, by which alone the simplest definite knowledge can be acquired. The reason that so many people fail to learn anything after they have left school, is because they are incapable of initiating the deliberate or sustained attention which is necessary, and this incapacity is due to lack either of the characteristic feeling which should command attention,—that is, intellectual curiosity,—or to the lack of any purpose which the knowledge could be made to serve, were this purpose only the further continuations of ideas. This is why, for the majority of adult human beings, no ideas enter the mind, except such as are revived in the repetition of cerebro-mental processes which have already been carried on. Such people can only think what they already know, and have neither desire nor power to learn anything new.

Since the acquisition of ideas is so closely dependent upon feeling and volition, it becomes necessary for the instructor in ideas to use every means to arouse the feelings of the child and to encourage the performance of voluntary acts.

Empirically, emotion is constantly appealed to in education. Fear, affection, vanity, ambition, self-love, these have been played upon by pedagogues for centuries. They cannot be entirely neglected. Yet to the extent to which these feelings operate, they cannot but tend to increase the area of that personal nucleus, whose relative diminution is a principal aim of education. It is little use to acquire knowledge of impersonal things and relations, if this knowledge only serves to feed the cravings of personal vanity, and afford no satisfaction unless these be gratified.

The feeling which should accompany ideas is that of disinterested curiosity. Of this children are far more susceptible than is often supposed; indeed, far more so than is the average adult, whose indifference to new knowledge is frequently exasperating. But there is no prettier sight in the world than the flushed cheeks and kindling eyes of children upon whom a new idea has just dawned. The task of engaging the volition of children during the excitation of ideas is more complex. In the most simple way it is often profitable to set the child to work at something which interests him, in order that he may incidentally acquire certain information which is in itself distasteful or tedious, and yet which it is desirable that he should know. Thus Miss Edgeworth, in one of her charming stories, shows how a naughty boy, who has absolutely refused to learn how to read, is brought to do so with avidity, in order to procure some information about the cultivation of radishes—in which practical enterprise he has been made keenly interested.[3] So, as I have already suggested, much substantial knowledge of the cube can readily be acquired, when the child is encouraged to use it as a building block. Innumerable applications of this method will suggest themselves to every skillful teacher. The internal activity of the mind is aroused by desire, and no desire is more effective than that to accomplish a purpose. Many individuals, throughout their lifetime, never think except in connection with something they do. And indeed if we consider the world at large, we may perceive that all thought has developed out of impulses to action. Why should it be otherwise with the growing child?

When experiments are performed by the pupil for the purpose of demonstrating the properties of sensible objects, the influence of his voluntary action becomes still more obvious. The experiment may be as simple as that of dissecting an apple, or it may be among the most abstruse offered in the study of the physical sciences. But in every case the pupil is compelled to do something in order to bring about a situation or elicit a phenomenon which he may subsequently observe. Each action involves cerebro-mental excitation, thus a phase of consciousness, a moment of life to be woven into the chain of existence. Thus the immense importance of experimental study and physical science does not consist, as is sometimes crudely claimed, in a training of the senses. It lies in the circumstance that sensible facts are constantly being transformed into mental facts through the energy of human volition. The world external to the brain becomes resolved into perceptions or ideas in the mind. Such training of the senses as occurs is incidental. At present we cannot be said to possess any system of elementary training for the senses beyond what is afforded by the study of music, or by the exercises of the gymnasium.

---

[3] The sound philosophy of Miss Edgeworth's stories is often concealed by the simplicity of the garb in which it is clothed.

Such a system might very usefully be devised, based upon psycho-physical investigations.

One very interesting consideration lies right in my path, and should be mentioned, for it concerns a much-mooted but really futile question. The question is: Shall the child study Latin or science? I call the question futile because in reality the child must study Latin in order to be able to study science. In the Latin language, which is also ours, we are enabled to witness an extraordinary phenomenon, which has become the basis of all our thoughts. We are able to witness the incessant transformation of sense perceptions into concepts and abstract ideas. The Latin words are all alive with sensuous force; they move, and fall, and leap, and burn, and sing. Every word is either a picture of a thing, or an event; or else it indicates some space relation between things. Things are above or below, within or without other things. We do not possess superior or subordinate ideas, but ideas of subordination or superiority. That is, we have mental images of objects standing in a superior or inferior position to other objects. Hence there are no such things as synonyms. There are equivalences in nature, but there can be no synonyms in language, for every word represents a different angle of vision for the mind contemplating nature. I have tabulated a small group of words which would most readily be classed as synonymous, and are often carelessly interchanged in English. But read in Latin, and in their native picturesqueness, they are seen to be quite distinct. "Illustrious" is what the light shines upon; "conspicuous," what is espied; "distinguished," what is separated from the rest; "notable," or "notorious," what is known by a sign; and "egregious," which we now only use for blunders, was, originally applied to any celebrity that raised his head out of the flock, as an ambitious ram was so often seen to do.

In a commonplace way of considering these things, the child is merely told that the words are derived from such and such circumstances. The impression is left—is perhaps intended—that some one, already possessed of an abstract idea, seized upon the sensory image as a means of expressing this. But the reverse is true. The sensory images were first perceived, grouped together, and the relations common to all abstracted, then these relations remained as a residuum in consciousness, an idea mysteriously capable of expression by a sign—a word. This process of the genesis of thought for the race, is exactly repeated for each child. Whoever would acquire some little of the masterful grasp of the world which has forever characterized the Romans, must follow them, and allow their thoughts and language to grow up from their vision of the world. What the eye sees clearly, and the speech reproduces truthfully, that will the hand grasp forcibly, and the mind thoroughly dominate. Because of this mode of evolution of thought, experimental volition can be invoked for the aid of other ideas than sense perceptions.

Let me return to the three other pieces of information which I have imagined to be presented to the child. The next after the cube was the contour of the north shore of Long Island Sound.

This is an actual object in space; but it can never be an object of direct perception to the child, because his visual sense can never embrace it. The space relations of the different points on the outline in question, can, however, be estimated by means of actual surveys, and these space relations be expressed diagrammatically in a visual image, that is, in a map. It is this visual image which must be presented to the child, in order to excite an idea; it is the map outline which is perceived, and the space relations of its different segments. The visual perception of the map becomes an idea in the mind; its revival in memory, as an internal mental image, is effected by an act of attention.

The third knowledge to be imparted, the date of the landing of the Pilgrims, no longer involves space relations, but relations in time. These are immensely more difficult of apprehension. Relations in space are directly apprehended by the visual sense, or inferred from signs which are directly perceived. But the perception of time is a matter of internal experience. We know time because we are conscious of a change of our own state; we are aware of a series of sequences in such changes. But how can this inform us of periods of time which lie entirely outside of our personal experience? How can a child be informed, whose experience is so much narrower, who forgets so much even of that experience, and who therefore only has an idea of the shortest series of events? The problem is in many respects analogous to that of calling up a mental image of geographical relations, which can never be directly perceived. This problem was solved by means of a symbol, the map. The symbol itself is constructed by means of a series of laborious inferences from direct space observations, those involved in the process of surveying. In the same way, our knowledge of historical sequences depends upon a complicated series of laborious inferences which are far beyond the capacity of the child, to whom nevertheless it may be convenient to tell the story of the Pilgrims, and the date of their landing. These inferences, to be intelligible to the child, must be represented by means of a space symbol. A date has no meaning except in relation to something before and behind it. This relation of sequence in time can be expressed by a coexistence in space, and as such converted into a visual image, which can pass into the child's consciousness as an idea. The symbol might be nothing but a very long line drawn on the wall, and intersected at suitable proportionate intervals by vertical lines, representing salient epochs, as, the Trojan War, the first Olympiad, the birth of Christ, the discovery of America, the landing of the Pilgrims, and the last Presidential election. [Fig. 11.] Other more complex diagrams may be used, and Bern's historical charts are admirable. But the single line already suffices to convey the funda-

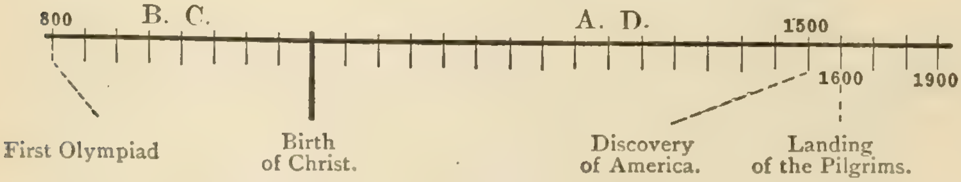


FIG. 11.

mental idea of before and after, and without this idea, knowledge of historical dates is an illusion.

I think every one on examining his own mind will notice that the conception of a time period always presents itself as a space tract. We must think of some event from which to date any other event; and therefore at least two ideas must be present in consciousness. But what is simultaneous in consciousness can always be represented as coexistent in space. We only live in the present, and can only think of the past by recalling it into the present. This fact is the foundation for the entire graphic method, which is of such immense importance in modern science. The beatings of the pulse, the movements of the chest in respiration, even the ebb and flow of the body temperature during long weeks of fever, may all be represented on a chart, and thus brought within the limits of a single visual perception. The essential physiognomy of special diseases may thus be imaged. At a glance it is possible to see that one series of curves is taken from a typhoid fever patient, and another from a case of famine fever. For everything is motion: and the stillest form only indicates the direction in which many masses of molecules move.

Our fourth piece of knowledge is the relation of the subjunctive to the indicative mood. This is a specimen of as abstract a kind of knowledge as can be presented to the child. The refined modality of an action, its possibility, its relation to a dozen different mental states, doubt, fear, concession, and the rest,—all this is difficult to convey to a child's understanding. Frequently, on that account, I suppose, such conveyance is not attempted, but a form of words is substituted, to be learned by heart. In Fig. 12, I have tried to show how some of the most salient characteristics of the subjunctive mood can be shown. The parallelogram standing for the subjunc-

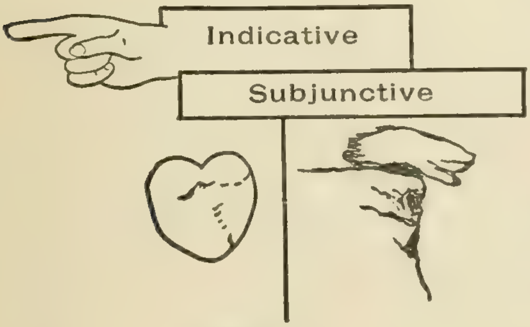


FIG. 12.

tive, is placed below and to the side of the indicative. It lacks the index pointer of the primary mood. The grammars divide the uses of the subjunctive mood into cases of desire and of possibility. I have ventured to symbolize these two cases by hieroglyphic pictures—a heart standing for desire, a falling stone for possibility. This is a return to the primitive mode of written expression, when all words were pictures, and the pictures had not yet been worn away to mere signs. The construction of the diagram symbolizes the mental construction, gives it the material body which seems to be indispensable to definiteness and thoroughness of thought, and associates with the perception of relations an act of volition, by which the relatively faint excitation of the perception becomes broadened, deepened, and diffused in the brain and mind.

The anatomical basis for volition and emotion is really better known than that for ideas proper or their complex combinations. The initial stage of volition is the conception of the end to be attained. This conception is correlated with some nervous process, sustained on the cortex or superficial part of the brain. When a voluntary act is performed, a long tract of fibers is excited—the so-called motor tract, which descends from the ideo-motor region of the cortex to the ganglia at the base of the brain and below it, where the innervations of voluntary muscles originate. When the volition is not at once carried into effect, but remains before consciousness as an intuition, it is supposed that this motor tract is also excited, but less vividly than when an act is performed.

Similarly for emotion, the theories which characterize emotion by the various disturbances in the viscera, in circulation, and in respiration, which are known to accompany strong feeling,[4] may be especially supported by the fact that in the medulla are concentrated nervous foci which preside over all the vital functions; namely, the cardiac, respiratory, and vasomotor centers. Thus, when the pulse or respiration quickens by emotion, we are compelled to assume, as in the case of volition, that an excitation was diffused throughout the brain, from the cortex to the base. [Fig. 16.]

---

[4] The now celebrated theory of Professor James.

To secure such massive cerebro-mental action is the fundamental reason for trying to excite feelings, and to suggest voluntary acts to a child, whenever we attempt to generate in his mind a new idea.

I have now drawn this line of thought to a close, and will sum up the three or four propositions I have tried to elucidate. I have only touched upon one or two of the most general psychological aspects of education, and have passed by many that might seem especially to call for discussion. Thus I have left entirely untouched the great fact that the child's mind is an organism in course of evolution; that on this account its processes often differ radically from those of an adult mind; and may often be most fruitfully studied along the lines explored by Romanes, who traces the evolution of mind from the lower animals up. Again, I have hardly alluded to the recent experiments in psycho-physics, which some writers seem inclined to consider the most practical and fruitful part of modern psychology. These experiments investigate, in fractions of a second, the time relations of many cerebro-mental phenomena, especially acts of perception as modified by the attention of the subject, or the complexity of the recognition required. Other experiments investigate the

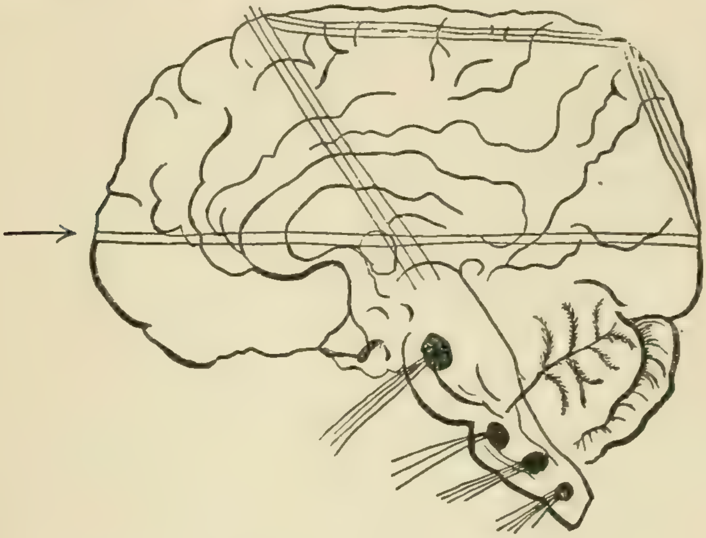


Fig. 16.

quantum relations between stimuli and sensations; and these again as modified by the attention, or experience—that is, by the previous life of the subject.

Themes like these are equally large and special, and it has seemed better to dwell upon a few more fundamental considerations, which may determine the most general attitude of the teacher toward his charge. I will sum up these considerations as follows:

To the self-consciousness of each individual the mind is a cluster of ideas; to every one else, an aggregate of activities.

The attempt to impart knowledge to a child means the attempt to introduce a new idea into this cluster, or to excite a new activity in this aggregate.

The fundamental fallacy to which educational effort is liable is that of mistaking the presentation of a verbal statement for the effective generation of an idea.

The generation of a new idea in consciousness constitutes an actual enlargement of the area of an individual being. To have an idea is to live an idea, and, therefore, the more ideas the more life. There is no other way known to us of having more life.

Ideas, in the most general sense, are phases of consciousness. They may be divided into feelings and perceptions. The feelings are of external origin, that is, sensations; or of internal origin, when they are either emotions or volitions.

Perceptions are also either external or internal. External perceptions result from a fusion in consciousness of sensations, and are directed either to external objects or to the space relations between them. Internal perceptions are directed either to the revived, that is, the ideal, feelings of things, or to the relations between these revived feelings or ideas. When combined they are called concepts.

Relations of time can only be appreciated as feelings of conscious change of personal condition. Outside of ourselves we never know time, but only space. A series of sequences in time, therefore, to be vividly appreciated, must always be expressed as a group of coexistences in space.

The perception of a sensible object, which is the foundation of all knowledge, remains the permanent type of all knowledge. Internal perception of general concepts and abstract ideas can be guided by study of external perception of concrete things.

Two things are essential to each perception: multiplicity of impressions, and their fusion into unity at some focus to which they converge. The fusion of sensations into sense perceptions can be plausibly traced in nerve tracts of the brain. The fusion of perceptions cannot, at present at least, be so traced. We are compelled to speak of a fusion in consciousness, at a mental focus.

Distinct thought always implies fusion of multiple mental impressions into a unique pulse of thought. Each pulse of thought occupies the center area of consciousness for a given moment of existence, however brief.

It is essential that all impressions made from without upon the child's mind should be made to converge into this unity. If no new pulse of thought be generated, the impressions have failed to affect the mind. As is commonly said, either they are not understood, or they are forgotten.

The most comprehensive aim of education is the development of power, the generation of force. The educational subject must be able to think more, feel more, do more than he who is not educated. The efforts of education must constantly be limited by the conditions imposed by heredity, and the amount of nervous energy originally possessed by the child. But within these limits there remains a wide range of possibility.

MARY PUTNAM JACOBI.

NEW YORK.

II.

THE PRESENT CONDITION OF GERMAN UNIVERSITIES.[1]

There are in the German Empire twenty-three universities. With a few exceptions these are constituted with four faculties each—theology, law, medicine, and philosophy. Of these exceptions, Popplesdorf has but one faculty, agriculture; Münster and Braunsberg have two, theology and philosophy; Bonn and Breslau have five, theology being divided into Protestant and Catholic; Munich has five, a faculty of political science being added; Tübingen has seven, theology being divided, and faculties of political and natural science being added. Heidelberg has just created a separate faculty of natural science. In the summer semester, 1890, there were in German universities a total number of 29,317 students. The entire teaching force numbered 2437, divided as follows; ordinary or full professors, 1063; extraordinary or associate professors, 524; honorary professors, 63; docenten or tutors, 649; language and sword masters, 138. Thus the entire body of the universities was 31,754, or an average of 1380 persons to each institution. The annual salary which ordinary professors, or heads of departments, receive from the state, varies with different sections, faculties, and universities. In Prussia the average is as follows: In law, 6043 M.; in theology, 5718 M.; in philosophy, 5568 M.; in medicine, 5301 M. But Göttingen pays her law professors 12,600 M., and Berlin her philosophical and theological professors 12,000 and 10,200 M. respectively. To these amounts are to be added the fees collected from those who attend the professors' lectures. The extraordinary professors receive from the state about one-half the amount paid to the ordinary, while the tutors depend solely on their class-room fees.

---

[1] In addition to personal experience and correspondence, information has been derived chiefly from the *Deutscher Universitäts Kalender*, published semi-annually by Prof. Dr. F. Ascherson, Berlin; the *Akademische Blätter;* the *Akademische Monatshefte;* Kürschner's *Staatshandbuch; Statistisches Jahrbuch der höheren Schulen*, and the *Personal und Vorlesungen Verzeichnisse* of the present year. As the sources are not always in accord, the results are often approximate only.

It is often supposed that foreign students are a large factor in German universities, yet there are only about 1000 foreigners in attendance. About one-third of these are from North America. It would be interesting could one determine what proportion of the 29,317 students finish the university course by taking a degree, but the German student is so mixed up with the state by service and examination, and the statistics are so imperfect and difficult to obtain, that it is quite impossible to attain any exact result. It is clear, however, that not more than one-fourth of the students, probably not more than one-fifth, are granted degrees. A small but interesting element in the question concerning the uncrowned studenthood is that all who make for degrees do not make them. The question as to how large an element this is, as well as the question of the distribution of the degrees among the different grades for dissertations and examinations, cannot be answered in many cases. Out of 741 *examinations* held in four of the best universities no first grade degree was given, but of the second grade there were 36, of the third grade 270, of the fourth grade 153, and 282 failures. Some universities and some professors seldom or never give first grade, others give it only for original investigation which is of positive value, while others are careless in the matter. These figures are not to be taken as representative but merely as suggestive.

The following table shows the numerical constitution of the twelve leading universities in the summer semesters of the years 1878, 1885, and 1890.

	YEARS.	BERLIN.	BONN.	BRESLAU.	ERLANGEN.	FREIBURG.	GÖTTINGEN.	HALLE.	HEIDELBERG.	LEIPZIG.	MUNICH.	TÜBINGEN.	WÜRZBURG.	TOTALS.
Lecturers	1878	215	100	106	64	57	120	107	110	160	136	88	66	1329
	1885	278	118	128	59	73	117	108	101	175	152	91	68	1468
	1890	335	125	136	61	91	122	129	120	194	170	89	77	1649
Students	1878	2569	1063	1240	415	418	988	914	750	2861	1364	1137	922	14641
	1885	4465	1251	1422	811	1144	1017	1600	957	3075	2825	1422	12[illegible]1	21280
	1890	4781	1424	1308	1006	1254	928	1626	1089	3177	3551	1422	1612	23178
In Theology	1878	150	175	179	140	39	94	203	34	366	86	427	14[illegible]	10[illegible]3
	1885	600	200	332	402	85	199	598	65	690	110	592	203	40[illegible]4
	1890	698	235	397	290	203	245	721	91	577	150	594	144	4413
In Law	1878	888	312	369	50	119	309	125	410	958	413	354	102	4409
	1885	937	303	190	103	263	179	118	302	610	1006	389	145	4545
	1890	1235	305	231	213	305	197	133	327	936	1497	453	330	61[illegible]2
In Philosophy	1878	1185	422	584	93	79	472	460	203	1222	409	192	205	5535
	1885	1856	497	503	87	322	435	568	325	1104	571	199	15[illegible]	6[illegible]26
	1890	1664	424	350	144	293	272	464	321	770	523	112	141	5478
In Medicine	1878	346	1[illegible]4	178	132	181	114	117	103	335	456	164	47[illegible]	2[illegible]55
	1885	1072	311	397	219	474	204	316	265	662	1129	242	781	6075
	1890	1184	400	330	359	453	214	300	350	894	1381	262	9[illegible]7	7124

This table, for the most part, explains itself. I may mention a few points which it suggests but does not make entirely clear. It is evident that the growth of the universities in numbers is remarkable, but when *all* the universities are considered, the advance is still more striking. The attendance on the universities has doubled, while the population of Germany has advanced about sixteen per cent. In the last twelve years the universities have added nearly fifty per cent. to the number of students. This alarms the Kaiser, who agrees with Bismarck that the danger of Germany lies in the existence and rapid growth of a "learned proletariat," "candidates for hunger," as they are termed, and this is one of the arguments he urges for un-humanizing the Gymnasien. That such a class exists, and has existed for many years, there can be no question; it is a large factor in journalism, and is responsible in part for Germany's large annual output of books. But our table shows that Göttingen has sixty students fewer than ten years ago, while Breslau has lost 114 students in the last five years. The small advance of Berlin in this latter period will be, perhaps, more noticeable. The attendance at Berlin during the past three semesters was, chronologically, as follows: 6187, 5731, and 4781. This means that Berlin has lost 1406 students very recently. The fact is often overlooked, that Berlin has each semester from 1800 to 2000 nominal attendants upon lectures who have no more connection with the university than with the theaters which they attend, and it is seldom noticed that Munich has much larger numbers in jurisprudence and medicine than Berlin. I asked a well-known professor how he explained this numerical superiority of Munich to Berlin and Leipzig. He replied: "They have in Munich a professor who draws more students than any other in all Germany—Professor Beer." Berlin's attractions are different. They lie not altogether in the faculty of the university but in the city itself. Berlin is the nerve-center of social, material, and imperial Germany, and her libraries, especially the Royal, are in every possible respect superior to any others in Germany. As Berlin is the nerve-center, her university feels most the reaction, in attendance on universities, which has taken place in the last three years. That there has been an effectual check on growing numbers there can be no question. The total number of students in each of the last six semesters is as follows: 29,190, 28,923, 29,491, 29,007, 29,317, and at present (1891) 28,711. The rapid growth began in 1870 and continued to 1887. Erlangen is the only university that makes noticeable headway against this recoil, although Leipzig in the present semester has five students more than ever before.

Glancing at the table, it is seen that in the last twelve years there has been a large increment in the teaching force and in the number of students; the absolute gain in the former being 320 and in the latter 8537. Moreover, while theology has made an absolute gain of 2450, law of 1753, and medicine of 4369 students, philosophy shows a loss in twelve years of 57, and in the last five years a loss of 1148 students. The difficulty of accounting for this condition is augmented by two important considerations. (1) Almost the entire increase in the teaching force in the last twelve years (I speak of professors), has been in philosophy. In 1878 the faculties stood in the following proportions and relations: theology 8, law 13, medicine 21, philosophy 51; and in 1890 they stand 8, 12, 21, and 60. Thus, while the faculties of theology, law, and medicine have remained about the same in the larger universities, the philosophical faculties have each added about nine members during the last twelve years. (2) While theology, law, and medicine are professional and clearly defined departments, philosophy covers any phase of knowledge which remains after these departments are subtracted. Thus we find in the universities, which have four faculties, the following sub-divisions under philosophy: philology, Oriental, classic, and modern; philosophy, including history, pedagogy, geography, and political science; natural sciences, including mathematics and astronomy; and art and archæology. Considering that the philosophical faculty comprehends all the natural sciences, supplies nearly all the teaching force of the Gymnasien, and covers the curriculum of the best American colleges, it is somewhat difficult to account for the falling off of students in this department while they have continued to increase in the three other departments, and while nearly the whole increase of professors has been in the philosophical faculty. The increase in the teaching force can be partially accounted for by division of labor and the introduction of new chairs in geography, political economy, and natural science. The diminution of students is due in part to the overcrowded condition of the teaching profession and to the present low condition of philosophy and philology. The faculties of philosophy are large and strong throughout Germany, but in the last few years there has been so rapid a decrease of students that at present the ablest professors complain of the small number of their hearers. Dr. J. Hutchinson Stirling is at much pains to show that philosophy ends with Hegel. This is admitted by many German professors, but in a sense very different from that which Dr. Stirling urges. The speculative period of German philosophy is dead, says Professor Jodl, and we believe there are not many who dispute him. Nevertheless it appears to have been Hegelianism rather than Hegel that "disgusted

Germany with speculative philosophy." Of the 137 students studying philosophy in Leipzig, 80 are foreigners, and the proportions are not much different throughout Germany.

The following table shows the distribution of hours per week given to those subjects which more than five-sixths of the American students are studying in Germany.

Subjects.	Berlin.	Bonn.	Breslau.	Erlangen.	Freiburg.	Göttingen.	Halle.	Heidelberg.	Leipzig.	Munich.	Tübingen.	Würzburg.	Totals.
Old Testament	27	27	26	11	6	5	16	16	25	8	7	10	184
New Testament	25	19	32	15	6	19	22	9	25	9	17	9	207
Theology	27	31	38	15	36	19	34	16	32	17	15	16	296
Church History	22	35	28	17	14	20	19	16	17	8	17	11	224
Roman Law	52	34	25	18	22	29	28	32	44	35	29	26	374
Other Law	145	53	59	59	56	52	52	55	80	67	41	38	757
History of Ancient Philosophy	12	8	4	2	2	3	3	..	7	6	4	4	55
History of Modern Philosophy	15	8	3	4	..	4	4	6	9	5	5	1	64
Systematic Philosophy	22	10	15	2	4	14	7	8	29	27	15	9	162
Ethics	10	12	7	4	10	5	6	..	9	6	10	6	85
Pedagogy	6	6	..	..	..	1	6	2	17	..	..	4	42
Political Economy	22	13	27	17	23	11	13	25	26	..	40	7	224
Ancient History	19	14	8	..	8	11	15	8	14	..	4	10	111
Modern History	20	13	14	6	12	13	13	19	20	22	16	8	176
Classical Philology	50	35	42	28	30	45	46	40	87	35	22	36	406
Modern Philology	46	32	31	16	16	13	24	17	38	26	17	9	285

This table shows the number of hours given per week by professors, exclusive of Docenten, in lectures and seminars. In using the terms Ancient and Modern, I take the close of the thirteenth century as the boundary line. Under ethics, theological ethics are included, and in classical philology the small fraction of Oriental philology. The schedule cannot be regarded as exact, for the freedom and flexibility allowed in the German university are disturbing elements when statistics of instruction are regarded. Not all the courses advertised are given, and it often happens that a professor substitutes another course for the one announced. The same difficulties are even greater as regards seminars. But the student may expect at least one well-conducted seminar, provided the university shows more than ten hours per week on the subject in question. It is also to be noticed that the German university, while nominally in session for nine months of the year, affords in fact not more than six months of active service. Vacations and holidays, in connection with the difficulty in beginning, and when begun to keep going, reduce the winter semester to four and the summer semester to three months.

The theological faculty of the German university, taken as a whole, is a conservative, alert, hard-working body. Apart from the increase in students, its power and position are about the same as they were thirty years ago. It would be as erroneous to characterize German theology by certain Radicals, as to make Strauss and Feuerbach stand for German philosophy and religion. The professor has always taken an active interest in political matters, usually on the side of a State Church. To attack the church is to attack the state, as has been recently shown by Egidy's exit from the army on account of his "Ernste Gedanken." Questions concerning Jews, Jesuits, and heretics are numerous enough to keep theology alive at all points. Just now the proposition to repeal the laws against the Jesuits has drawn forth a score of pamphlets. Even as I write, an anti-"Anti-Semitic Society" is being formed, with some of the strongest names in Germany, such as Gneist, Windscheid, von Ihering, Gustav Freytag, and Paul Heyse, in its lists. It is sometimes said, that at present theology is becoming more practical, and that the Old Testament is receiving much more attention. So far as the statistics of the last twelve or fifteen years are concerned there is no ground for either statement. Even considering Docenten, there is no change in the proportion of time given to the Old Testament, ethics, or pedagogy. In Catholic universities, as Munich, Freiburg, and Würzburg, or where the faculties are mixed, as in Bonn, Breslau, and Tübingen, more attention seems to be given to the ethical, legal, and historical elements in theology. Of the 5494 students of theology, 4273 are Protestant and 1221 are Catholic. The strongest theological faculties are in Berlin and Halle, the latter having nearly one-half of its students in this department. Celebrated names do not appear to have much influence on the distribution of theological students. The loss of Delitzsch did not much lessen the number in Leipzig, the removal of Harnack to Berlin did not at all affect the attendance in Giessen, while the numbers increased in Göttingen upon the death of Ritschl.

The most noticeable feature in the law faculty is the large proportion of time given to the exposition of the Pandecten. Out of a total of 1131 hours per week, 374 are given to Roman law, leaving but 757 hours for canon, civil, criminal, municipal, international, commercial, constitutional law, and the history and philosophy of these branches. A partial explanation of this is that Roman and German law are so vitally connected that the codes of the different states are to a great extent expressions and applications of the principles of the Pandects. The disproportion nevertheless does not admit of rational justification. A learned jurist remarks: "Even at the present time our young jurists, when they leave the university, know absolutely nothing except to parrot Roman and German law, and only very recently, in a very few universities, do they hear even once a sound from other worlds." This is but a mild statement of a wretched condition. Nasse, Holtzendorf, Meyer, and Lorenz all agree, that, with the exception of criminal and canon law, the students of the universities are thoroughly ignorant of public law and the science of politics. In all countries political science has lagged far behind the data of history since the American and French revolutions, but nowhere has there been less done and less disposition to do anything in this department than in German universities. With the possible exception of Tübingen, there is no German university that can be compared to Columbia, or even to Yale or Harvard, in respect to the instruction offered in political science. This explains why one seldom meets an English or American student of law in Germany. It is hoped that in a few years the codification of German law will be complete, and that as a result not only less time will be given to the Pandects, but more attention to legal and political history.

The department of medicine is the leading one in the universities, and shows the greatest advance in the last twelve years. If we except philology, which is a section of philosophy, one may say that medicine is the department in which

Germany is best rated. There are at present (1891) a total of 8776 medical students in the universities. Munich is undoubtedly the strongest center. Würzburg and Kiel are also very celebrated as medical schools, more than one-half of their students belonging to this department. Vienna, perhaps the best school in Europe, is pressed closely by Edinburgh, which has as many medical students as Berlin and Leipzig together. Copenhagen, however, promises to be a competitor for the first place, especially so far as faculty and accommodations are concerned.

The philosophical department is to foreigners the center of interest. More than one-half of all foreign students, and at least three-fourths of all American students, are registered under this faculty. Of the 69 American students in Leipzig, 60 are studying under the philosophical faculty, and 34 of these are registered in the section of philosophy. Taking all the universities together, the following order of subjects indicates the interest of the American students: philosophy, philology, natural science, political economy, history, and pedagogy. Of the subjects growing in importance one may mention political economy, geography, ethics, and physiological psychology. In all of these the historical features of the inductive method are emphasized and each contains a large amount of what passes under the general term anthropology. Economics is treated historically and systematically, but much of the so-called systematic work is purely historical, and a close connection is always made between history and politics. Dogmatism and *à priori* utilitarianism or egoism are not important features of instruction. While political economy has closely associated itself with history, geography has broken away from its Gymnasial bonds and made itself an independent department in most of the larger universities. The same may be said of psychology, which for centuries was mixed up in an indefinable manner with logic and metaphysics. The present effort is to separate psychology from philosophy and make it a purely experimental matter. What the result of this effort will be no one is as yet in a position to declare. For more than a century pedagogy in Germany has been trying to find a psychological foundation, but with no results that seem very remarkable. The call for better methods is louder than ever before, and difference of opinion as to how they are to be obtained no less rampant. The best work is probably being done in Leipzig, Halle, and Jena. The dualism in Pestalozzi and Herbart seems to disappear in the present chaos. Professor Rein of Jena, who is the head of Herbartianism in Germany, finds no essential antagonism between Herbart and Pestalozzi, and regards their theories as different stages in the history of the same system.

Passing over philology, which on the part of faculties is the strongest and most excellent feature of German universities; passing over history, which is the weakest and avowedly the most unsatisfactory feature, I may notice a few points concerning philosophy in general. In time given, the history of ancient stands to the history of modern philosophy as three to four. But this three-sevenths of time is given entirely to Greek philosophy. Patristic and scholastic philosophy are almost entirely overlooked or ignored. A large part of the time remaining is given to German philosophy. English philosophy from Bacon to Hume, is by no means neglected, but it is for the most part regarded as an introduction to Spinoza, Leibnitz, and Kant. In systematic philosophy the Germans give much attention to "Introduction to Philosophy," which is generally followed by logic, psychology, and the history of philosophy. Psychology stands foremost. In some universities it is given eighteen or twenty hours per week, while experimental psychology in Leipzig, Tübingen, and Freiburg allows as much time in the laboratory as the student is able to give. After these subjects, in order of prominence, come epistemology, metaphysics, ethics, history and philosophy of religion, philosophy of law, and æsthetics. It would be difficult to indicate the best universities for the study of philosophy without making some limitations. Heinze and Wundt in Leipzig, Sigwart and Pfleiderer in Tübingen, Windelband and Ziegler in Strassburg, Diels and Paulsen in Berlin, are all leading men in their several departments. These universities, in connection with what lies nearest to philosophy for the American student, may stand in the above order of merit, but the library advantages of Berlin are so superior that Berlin is justly regarded by many as the best center for independent study. The seminar system, taken up from the Jesuits, has been carried to greater perfection in Germany than in any other land. At present it is by no means peculiar to German universities, although the most valuable feature in them. The subjects most often considered in philosophical seminars appear to be Spinoza, Kant, Aristotle, Schopenhauer, Plato, Locke, and Lotze, and as a rule such seminars are admirably conducted.

In regard to the advantages and disadvantages for American students in German universities there is a great diversity of opinion. My own observations have on the whole made me somewhat skeptical regarding advantages. The argument from economical grounds does not appear to be of much force in favor of Germany. The rise of prices in the last two years has been great enough to alter the conditions which formerly obtained in university towns. If a student will live here as he lives in the eastern part of America, the expense will not be less, save in the item of amusements. It is true that students do live in Germany very inexpensively by submitting to very inferior accommodations. It has been shown that a man and his wife can exist for $600 per year, but such an existence as this entails is quite as possible in Boston or New York. From university statistics and personal inquiry I find that the necessary expenses of a frugal, rational student in Berlin or Leipzig are at least 1821 marks, or about $450. No student should attempt a year in Germany without adding $100 to this amount, and few will find themselves unfettered who do not allow $650 for the entire year. The majority of American students in Germany are there for a definite purpose, are very hard workers, take a high stand among their German fellows, and are favorably regarded by the professors. The general advantages which accrue from foreign study and travel are perhaps greater in Germany than in any other country. Her art treasures are great, her historical monuments are numerous, her people are genial, kind-hearted, and ambitious. She has much in common with us; we are both Teutonic, and this persists through time and space. Berlin is New York half awake, and should an American be half asleep he might mistake the former for the latter. But, recurring to the question of universities, the advantages are not so apparent. In the last fifteen years, American universities have advanced so much and the German so little that the old gulf between them is closing up, perhaps is closed up for American students, in all departments save philology and medicine. There is a general and almost impregnable superstition in America, and even in Great Britain, about German universities and scholarship. I believe that four out of every five students who have been more than one year in the German university will ultimately justify their sojourn there on the ground that a German degree is worth more and counts for more than an American degree. And this is strictly true. American colleges and universities, with some few exceptions, are so reckless in distributing their paper that there is not a single degree given in America that necessarily means anything. A degree from a first class German university means something definite and becomes more definite by being itself graded.

MATTOON M. CURTIS.

LEIPZIG, GERMANY.

III.

THE AMERICAN HIGH SCHOOL. (I)

The High School is the culmination of the American common school system. Its main office, though not its only function, is to serve as the final stage in the course designed to prepare boys and girls for entrance upon the duties of active life. Taking its pupils from the elementary schools at about the age of fourteen, when by nine years of previous school life they have acquired a considerable store of facts, and have gained some facility in the use of their mental equipment, it proceeds to organize and co-ordinate their loosely aggregated knowledge, to give strength and precision to their mental faculties by supervising the acquisition of other and more complex trains of facts, and also to develop additional powers, especially those involved in the processes of reasoning. For four rich years this work is carried on, till the pupils are sent forth at eighteen or nineteen, in the bloom of their youth, to make for themselves practical applications of the principles which their teachers have aimed to inculcate.

That schools of this general nature are a necessity to civilization scarcely needs a word of proof. A glance at educational history shows that such means of culture have been demanded and provided whenever and wherever education has been highly valued. It is claimed that they were common in the principal towns of Scotland as early as the twelfth century. Professor Payne has pointed out the significance of the fact that the English Public School, the French *Lycée* and *Collége Communal*, the German *Gymnasium* and *Realschule*, the New England Academy, and the American High School are all intitutions of the same general type and fulfill the same general function. It is, indeed, worthy of note that this institution meets the intellectual needs and aspirations of three such races as the Anglo-Saxon, the Teutonic, and the Latin—the dominant races of the world. Nor is the period of time through which this kind of school has lived and flourished devoid of meaning. Eton was founded in the fifteenth century, Harrow in the sixteenth, and early in the seventeenth century Comenius, the greatest educational benefactor of continental Europe, introduced the Gymnasium into his plan for universal education. Over so wide an area, then, and through four centuries of history, this idea has had a trial, and in point of vigor and general acceptance its latter days are its best days. Is not this at once a most convincing proof of its utility and necessity, and a prophecy of life and honor long to come?

HISTORICAL SKETCH.

The American High School is less than a century old. It is true that the Public Latin School of Boston, the oldest existing High School, which admirably represents the classical side of secondary training, has a history of continuous service for two centuries and a half; but in its earlier years it was rather a grammar school, so called, than a free, public High School. To Boston, however, belongs the honor of establishing, in 1821, the first typical High School, the English High School, an institution peculiar to the present century, representing the best English education. Five years later, in consequence of an enactment by the Legislature of Massachusetts, other High Schools began to spring up in that State. These numbered fully a dozen before the idea was adopted by any other State. In 1837 Philadelphia founded its Central High School, and in 1839 Baltimore established its City College (a boys' High School). These city schools were for boys only. An attempt was made by Boston, in 1826, to open a High School for girls, but after a single year "the enterprise was abandoned because of its great success; to give such an education to both sexes involved too great expense." This honor was left, therefore, to some of the country towns,[1] and to Philadelphia, which city, after trying for three years its experiment with a High School for boys, established, in 1840, a similar school for girls. Providence, in 1843, on opening its High School, received both boys and girls. It was not until 1849 that New York founded its Free Academy, now known as the City College.

---

[1] New Bedford, in 1827, opened a High School for both sexes.

Though so modern an institution, the High School is the outgrowth of two ideas which are as old as the founding of New England: the responsibility of the State for the education of its children, and a high regard for liberal education. In the fifth year of the settlement of Boston (April 13, 1635), the people, in town meeting assembled, requested "Brother Philemon Purmont to become schoolmaster for the teaching and nurturing of children," and voted him in part pay for his services thirty acres of land. A garden plot was also granted to "Danyell Maude, schoolmaster." These men are thought to have been respectively the first public and private school-teachers in the colony. But the schools of that time, while free in the sense that all classes were at liberty to send children to them, and public in the sense that the people's money assisted in the support of them, were not what we now term free public schools. Their main support came from the fees paid by the parents, and not from public funds.

In the year following (September 8, 1636) the General Court of Massachusetts voted the sum of four hundred pounds, a sum equal to the entire annual revenue of the colony, "toward a school or college." This assembly, over which Sir Henry Vane presided, is believed to have been "the first body in which the people, by their representatives, ever gave their own money to found a place of education." The founders of the American nation are thus seen to have felt a responsibility for education in its higher as well as in its lower aspects. The Massachusetts School Law of 1642 laid upon the several towns (townships) the responsibility for "the training up of children in learning and labor." But it was in 1647 (November 11) that the school system of the colony—the earliest system established by any community in the new world—had its real birth. In the enactment of that year occurs the following reference to the germ of the modern high school:

"And it is further ordered that where any towne shall increase to the number of 100 families or householders, they shall set up a grammar schoole, the master thereof being able to instruct youths so far as they may be fited for the University; provided that if any towne neglect the performance hereof above one yeare, then every such towne shall pay five pounds to the next schoole, till they shall perform this order."[2] A similar code was enacted in Connecticut three years later.

The "grammar school" thus provided for was an institution that grew up alongside of the earliest colonial colleges, and sometimes antedated them. Such schools were intended to prepare their pupils for the colleges by supplementing with a classical training the meager elementary instruction received in the lower schools and at home. Latin, Greek, and mathematics were their main studies, and in early times seem to have been thoroughly taught. Mather, in his *Magnalia*, says: "When scholars had so far profited at the grammar schools that they could read any classical author into English, and readily make and speak true Latin, and write it in verse as well as in prose, and perfectly decline the paradigms of nouns and verbs in the Greek tongue, they were judged capable of admission to Harvard College." This standard speaks well for the early scholarship of both "grammar school" and college. These ancient preparatory schools derived their name and typical character from the old cathedral grammar schools in England, or the cloister schools of the monasteries. They were in New England, however, intensely local, and only in rare cases sufficiently well supported or endowed to become permanently successful. The Boston Latin School and the Hopkins Grammar Schools at New Haven and Cambridge were among the earliest and best representatives of these local fitting schools; and Ezekiel Cheever, first at New Haven (1638) and finally at Boston (1708), was the most famous "master." The time came, however, when classical culture suffered a decline. It was preserved in part by the one learned profession, that of divinity, but even in this profession the standard of classical attainments sank lamentably low. Near the middle of the eighteenth century a better day began to dawn. In particular, the founding of the Dummer School, at Byfield, Mass., in 1763, and the coming of Samuel Moody as master, mark a new era in American classical instruction.

---

[2] *Massachusetts Colonial Records*, vol. ii, p. 203. It is interesting to note that this penalty of "five pounds" was equivalent to the work of a common laborer for two hundred days. By 1718 it had been increased to sixty pounds.

The long and successful career of Master Moody at Byfield directly led to the establishment, near the close of the Revolution, of what may be termed the three oldest academies, the Phillips Academy at Andover, Mass., the Phillips Exeter Academy at Exeter, N. H., and Leicester Academy in the Massachusetts town of the same name. Each of these originated as foundation schools established by eminent civilians; but they differed from the grammar schools in granting no special advantage to the towns in which they were located. This distinction seems to have been at first the leading one separating the ancient grammar school from the New England academy, but there was a further difference in that the academy was not of necessity a preparatory school for college. Professor Boone is of the opinion that these academies were modeled upon the English academies established by the Dissenters after the passage of the Act of Toleration (1689), in compliance with a suggestion of Milton in his *Tractate on Education*. They certainly were independent institutions, unlike the grammar schools, and had extended courses. They rapidly multiplied, especially in New England and the Middle States, and by the beginning of the present century were to be found in almost every State in the Union. The British academies were framed after the pattern of the great public schools,—Eton, Rugby, and the like,—where the children of the aristocracy were trained; but their American successors soon became closely adapted to the needs of the democratic communities which created them. They were kept near to the people, breathing the spirit of the time. They flourished during the last quarter of the eighteenth century, and well into the nineteenth. At first, we have seen, they were founded by endowments. Later, schools of the same name, and supplying an English education of the same high grade, sprang up in many of the important towns of the East, relying solely upon tuition fees and having a somewhat intermittent existence. Their patronage depended mainly upon the local popularity of the teacher. In general, the teachers of the academies in their palmiest days were among the finest scholars and ablest instructors in the land. These institutions were, and are, well adapted to serve as agents of secondary education for sparsely settled communities. But after population began to assemble in the large towns and cities, they, too, suffered a decline, and were replaced in great measure by public High Schools. Not all have disappeared, however, but some are thriving as preparatory schools, others as denominational schools, and still others are the main dependence of rural communities for the supplementing of elementary education. It is evident, however, that the academy can never resume its old place as the chief secondary school for the American people.

The High School is one of the many products of the seething conflict of ideas which prevailed in the first third of the present century. For this period was one of great change and abundant growth. In the four decades following the adoption of the Federal constitution, population had trebled. The cities had increased from six to twenty-six, and now (1830) contained one-sixteenth of all the people. The original thirteen States had become twenty-four, and their original area had expanded five-fold. Commerce and manufactures were feeling the impulse forward. Canals threaded the country for sixteen hundred miles, and railroads grew from the four miles at Quincy in 1826 to a thousand miles in 1835. In intellectual aspects, also, the nation was experiencing a renaissance. Some thirty colleges had their origin in this period, and in older institutions new departments, as of medicine, law, and modern languages, were added. Where there were but thirty-five newspapers in 1775, not less than a thousand existed in 1830. Professor Boone well says, "In the atmosphere of the Revolution were born and reared statesmen and soldiers; not less did the years following give scholars and authors and teachers, tradesmen and benefactors, professional and scientific men."

These were days of great diversity of opinion on many points relating to social, political, and commercial progress; but on one point all agreed—that intelligence is necessary to citizenship in a free nation. "In proportion as the structure of a government gives force to public opinion," said Washington, "it is necessary that public opinion should be enlightened." Jefferson held that "the diffusion of light and education are the resources most to be relied on for ameliorating the condition, promoting the virtue, and advancing the happiness of man." Men in public life and in humbler stations alike cherished such views. It was a doctrine of common belief, not a personal opinion alone, which Chancellor Kent expressed when he said that "the parent who sends his son into the world uneducated defrauds the community of a useful citizen and bequeaths to it a nuisance." It was out of such elevated sentiments that by natural evolution sprang the idea of universal, liberal, and public education. In the consequent enthusiasm for popular education, old agencies were made more efficient and new ones were devised, discussed, and put in operation. During these years multitudes of the educational, benevolent, and literary institutions that are now so flourishing, had their beginning.

One marked result of the agitation of these times was the better organization of the State systems of public education which had been established earlier, and the extension of them to meet the demands of the densely populated centers. It was easily seen that to the elementary schools there might well be added larger opportunities for learning, when the number who could avail themselves of such advantages was sufficient to warrant the increased expense. The academies and other private schools of like grade were reaching but a favored few, for tuition fees and boarding expenses shut out the masses. Moreover, the control of such schools was not in public hands. The school officers, elected by the people, preferred to expend the people's money on schools whose courses and methods of instruction they themselves could shape, instead of strengthening by their gifts establishments controlled by close corporations on previous foundations. Hence sprung up here and there in the cities free public schools, similar to the academies in courses and in actual work, but having an organic connection with the public schools below them. These soon received the name of High Schools. Doubtless the academies were the models on which they were formed, but they were also an expansion of the elementary schools to meet the popular demand for secondary education. They were free in the fullest sense to all; there was no fee to be paid, no social bar across the door. Intellectual fitness was the sole requisite for entrance. They were also public in the broadest meaning of the term, being supported by taxation and controlled by the people through officials especially chosen for the purpose. Such they have ever continued to be.

Allusion has previously been made to the first of these High Schools in Boston, Philadelphia, Baltimore, and Providence. From these urban centers they gradually spread in every direction over the Northern States, and particularly through New England and the regions whither New Englanders had gone. Massachusetts is the only commonwealth which has mandatory legislation relating to the establishment of High Schools. This measure, initiated in 1647, assumed nearly its present form in 1826. It calls for a High School of a certain kind in all towns of 500 families or more, and one of a higher grade in every town of 4000 or more inhabitants. These schools are to be kept ten months or longer each year, exclusive of vacations. The appreciation in which this sort of school is held in the State which gave it birth is shown by one significant fact: all the towns thus required to maintain High Schools are found to have them, and also more than forty others. Of the entire population of the State more than nine-tenths live in the towns and cities maintaining High Schools, and half the remainder, at least, within easy reach of such schools.

Many States have permissive legislation under which the number of High Schools is constantly growing. The policy of certain States, of which Massachusetts and Maine are examples, seems to be to encourage the several towns to create a large number of High Schools, some of them of low grade, and thus to bring these schools within reach of all or nearly all their population. In Massachusetts alone there are 236 schools called High Schools. Ohio has nearly twice as many. Other States, like Michigan and Minnesota, which support by public funds a State University, have legislation which aims to secure the creation by local communities of a smaller number of High Schools, each able to give adequate preparation for entrance to college. More than half the State Constitutions specify High Schools as objects of legislative and general interest. In one State (Georgia) on the contrary, there is a constitutional provision forbidding any except the elementary branches being taught in the public schools at the charge of the public funds. In the North Atlantic States (New England, New York, New Jersey, and Pennsylvania), sixty-four out of every thousand pupils in public schools are in the High Schools. As one goes westward the ratio decreases, and in the South, High Schools are not numerous. There seem to be no statistics at present available by which to determine how many High Schools there are in this country, but there are indications that the number is regularly increasing. One difficulty in the way of exact statistics on this point is the lack, in many States, of any well-defined line, outside of the cities, separating High Schools from those of a lower grade. In numerous rural districts, schools, and even the studies of individuals, are of a mixed primary and secondary character.

THE PUPILS AND THEIR PREPARATION.

The High School in America draws its pupils from all classes of society. In some communities it is the only secondary school, and there is demand for no other. In other localities private schools of similar grade exist, to which for social or denominational reasons the boys and girls of certain families are sent in preference. In general it is noticeable that the communities maintaining the best public High Schools are also those which have the best private secondary schools. The majority of High School pupils come from the great middle class of the land, which may be said to include all but the very poor and the very rich. Some seven years ago an investigation was made concerning something over a thousand pupils in the High Schools of Worcester, Medford, Melrose, Stoneham, and East Boston, representing fairly the High Schools of Massachusetts. Of these pupils, 25 per cent. were children of parents who pay only a poll tax, or none at all; 64 per cent. were children of parents taxed for $3000 or less; about 75 per cent. had parents taxed for less than $5000; and but 13½ per cent. were of parents paying a tax on more than $10,000. A recent speaker has estimated that five-eighths of the High School pupils of the country are children of the laboring classes. Certainly many of them come from homes in which the parents make genuine and prolonged sacrifices to secure for their children a much more liberal education than fell to their own lot. On the other hand, it is not unusual to find the boys and girls from the wealthiest families in the town sitting in the High School side by side with children of the workmen employed by those families, and all receiving precisely the same instruction and treatment. The school is thus strongly democratic in its influence, and becomes a nurse of right feeling of class for class, or rather of individual for individual, which is even better. After a score of years of service in public High Schools, attended by both sexes, the writer has yet to see the first instance of serious harm resulting from the association in these schools of young people from families of different social strata. On the other hand, in a land where personal ability is the chief criterion of success, and where class distinctions are so little regarded, and especially where social position is so likely to be altered, or even reversed, within a generation, it is most helpful to the young people of all classes to know their fellows for their real worth. This service to the rising generation is admirably performed in every community by the public schools, and most effectually by the public High School.

The system of grading which is most common in the public schools assumes five years as the age of entrance to the primary school, and provides nine grades, each detaining the pupil for a year, for the completion of the elementary course. The pupil who should proceed methodically over this course would thus pass from the last stage of the elementary work, *i.e.*, from what is termed the grammar school—to the High School at about the age of fourteen. Practically, however, the average age of entrance in most city High Schools is a half year or a year more; but there are extremes, of rare occurrence, when a pupil enters the high school at as low an age as twelve and as high as sixteen.

By the time of completing the elementary course, and as a preparation for his future High School work, the pupil is supposed to have familiarity with the elements of arithmetic, geography, American history, grammar, including spelling, and the writing of a fair hand. It goes without saying that in many schools this work is well done, and in others but poorly; that in every group of grammar school graduates some are well prepared for advanced study, others have nearly reached the limit of their development, in an academic sense, and not a few have in some part wasted their opportunities. The teaching in lower grades has been improved within recent years, especially in what are termed primary schools, and in many schools the development of power, rather than the mere acquisition of knowledge, is now the main aim. For pupils thus trained the transition to higher grades is obviously less abrupt, and accompanied by less strain, than in the case of children poorly equipped. The school system, however, still needs a closer adjustment at the point of contact between the grammar and High Schools. Evidently this adjustment will be easier if the passage from the grammar school to the High School be in the main a change from the elementary study of certain subjects to the more detailed study of the same, rather than a step from one subject to another which is both more complex and of a different nature. For some unexplained reason, altogether too few pupils enter the High School really knowing how to study. President Dwight declares that a youth should have learned this lesson at the age of thirteen, but this is an ideal to which there are comparatively few practical responses.

The decision as to what pupils shall enter the High School often rests with the local school committees, and not with the teachers from whom these pupils come or those to whom they are to go. As these committees are elective, it follows that they are sometimes sensitive to the wishes of ambitious parents, and lenient to deficiencies in preparation. They even boldly assert on occasion that all who have completed the last year in the highest grammar grade should, without regard to any tests of fitness, be "promoted" to the High School. But more frequently a judicious consultation of the representative of the committee and the principal teachers of the grammar schools determines the composition of the group of pupils who enter the High School; very rarely do the High School teachers themselves have any voice in the matter.

PROGRAMMES AND INSTRUCTION.

On entering the High School the pupil usually has a choice offered him of two or more courses. If his parents wish him to be prepared for college, his time for the four years will be chiefly spent upon Latin, Greek, algebra, geometry, and the English language and literature, together with other subjects required by the particular college selected; among these may be history, French, German, and physical science. This course is often styled the classical or college preparatory course. It requires four years, at least, and in many schools a subsequent year of post-graduate study is necessary in order to meet the requirements of the more exigent colleges, unless the student has exceptionally good ability and health. The few High Schools which have as their sole work the fitting of pupils for college, withdraw their pupils from the grammar schools two years or more before their elementary studies would naturally end, and keep them for six years. By far the greater number of High School pupils do not go to college, but pursue what may be termed a general course. This usually includes, in mathematics, elementary algebra through quadratics, elementary plane geometry, and a review of arithmetic; three or four years of Latin; a year of French or of German; a year of general history; a year of physics, or a half year of botany and a half year of zoölogy; a year of chemistry; and a varying amount of study—from one to four years—of the English language and literature. In most schools provision is made for the substitution of other studies for the Latin required in the general course, forming what is often termed the English course. In place of the Latin various substitutes are found, sometimes a modern language, or additional English study, or book-keeping and an increased amount of science teaching. In some schools the English course occupies a year less time than that offering Latin. In a very few schools a briefer course still, often called the business course, covers but two years. This has not been found altogether satisfactory where adopted.

Reference to the published programmes of various High Schools would illustrate the great variety of ways in which the High School idea is working out its evolution. This variety of plans, which must seem so strange to European observers, is a natural consequence of the American doctrine that the responsibility for the schools rests with the local authorities rather than with the central government. The national officers have no control over the public schools in the States. The State governments, moreover, simply see to it that the local communities (towns and cities in the East, and counties elsewhere) establish and maintain schools, but do not usually enforce uniformity of courses or methods, and are not often careful to secure helpful inspection of the schools. The character of the public schools, therefore, and, in particular, of the public High School, registers quite well the degree of culture of each local community. In each case the opinions of the school board determine the course of study for the school. Teachers have nominally no power in the matter, though virtually they exert considerable influence in the decision of questions relating to the internal management of the school, such as courses of study and methods of instruction. Unfortunately teachers are by no means agreed upon many questions concerning High School courses. From these conditions there can be no result but wide variety. It is doubtless true that the varying interests of communities call for different courses of study in different places, but child nature is so nearly the same everywhere that some degree of unity seems possible, as it certainly is desirable.

The character of the instruction given in American High Schools is by no means uniform. The principals of these schools, particularly in the East, are generally men of collegiate training, and their assistants are usually men and women who, if they have not been to college or a scientific school, have graduated from some secondary institution. The High School teachers commonly receive the largest salaries paid by the town for instruction, and not infrequently represent the union of sound learning with ripe experience in the work of education. In the smaller schools, especially in the South and West, are to be found, on the other hand, youthful teachers whose studies are not yet complete and whose experience is near its beginning. Owing to peculiarly American conditions, very little has yet been done in colleges or normal schools for the provision of men and women suitably equipped for High School teaching—that is to say, having at the outset high scholarship and an intelligent acquaintance with the art of teaching, derived both from theoretical study and from observation of good models. But there are plain signs of a rising public demand in this direction, and preparations are in progress for meeting it.

The High School teachers of the present generation, having worked out the problems of their daily tasks with little help save that which comes from intelligent reading, and from contact with their fellows in school or at educational gatherings, have not all attained ideal success as instructors. They are, however, progressive in spirit, and, in the main, worthy of the prominence accorded them in educational circles. An inspector in one of the States in which High Schools most abound, says: "Of the High School men of the State, with rare exceptions, all the more striking by contrast, I cannot speak too highly. They are scholarly in tastes and habits, gentlemanly in bearing, cultivated in speech, and thoroughly devoted to their work. I esteem it a privilege to have made their acquaintance. To be in their presence and under their instruction for a series of years is a rare good fortune; and coming, as it does, at that critical period of life when the boys and girls are just creating their ideals of character, it fitly crowns the beneficent influences exerted by the public schools."

The most thorough work is undoubtedly done in Latin. Here the aim is to lead the pupil to observe the form quickly, to distinguish minute differences, through the form to discern the relation, to select the probable from among the possible relations, and finally to clothe the newly discovered thought in the best English words and idioms. This process, calling for close application and unceasing intellectual alertness, results in a true culture. In recent years sight-reading has been given a prominent place in classical instruction, to the immense gain of the pupil. But there is still much plodding in the narrow paths of grammatical drill, without a glance into the more inviting fields of derivation, history, mythology, and *colloquia*. The modern languages are taught mainly by reading and translation, but practice in conversation is on the increase, and the number of schools in which French or German is habitually employed in the class-room, after the first few weeks in those subjects, is not now small. There has been a most salutary revival of interest in the English language and literature within the past decade, resulting both in the extension of the time devoted to the subject and in marked improvement in methods and results. The best schools now require this study in some form throughout the course. Two tendencies prevail: on the one hand to magnify the art of composition as compared with grammatical analysis; and on the other to cultivate an acquaintance with good literature, and a love for it, instead of memorizing historical facts about books and their authors. Much remains to be done, however, before the High School will send forth its graduates equipped with facile pens and ready tongues, able upon demand to use the mother-tongue with accuracy and grace.

In science studies modifications of the experimental method are driving from the best schools the former practice of memorizing text-books with the accompaniment of illustrative experiments. Costly apparatus in natural philosophy and chemistry is being replaced by laboratories more simply fitted with sets of implements by which objects and specimens may be observed and tested by the pupils themselves, who then are trained to record their observations, to draw inferences, to generalize, and, finally, to express with accuracy the results they reach. Similar work is done in botany, zoölogy, and geology. But a vast number of schools are yet inadequately equipped for genuine scientific work, and too many teachers have not yet been taught how to secure such work from their pupils. Scientific study in the High Schools is further weakened by the absence of elementary instruction in natural science in lower grades, and by the undue amount and variety of work usually imposed on teachers of science. Mathematics is universally taught in the three forms of arithmetic, algebra, and geometry. In the first, the aim is chiefly to keep the pupil familiar with numerical processes and to train him in rapid computation. In this the schools are not more than fairly successful. Algebra is better taught and by its severer demands furnishes a valuable discipline. In geometry, attention is commonly confined to plane figures. A marked improvement is taking place in methods, resulting in superior intellectual growth on the part of the more robust minds, but leaving the duller half with little gain. The memorizing of printed demonstrations is giving way before the solving of original problems and the working out at sight of unstudied theorems. In some few schools practical applications are made in surveying. Increased attention is being given to history, especially in its application to the science of government. The main reliance here is yet upon the reproduction of the text of compendiums of history, but in a few schools teachers use these as mines from which they lead the pupils to draw the materials, and by self-activity to combine them into finished products of historical knowledge. Frequently the study is made objective by an extensive use of pictures, maps, and other helps, and is broadened in sweep by collateral reading. Recitations are devoted not only to the testing of the content of the pupil's mind, but quite as much, by well-selected topics and well-planned questions, to the cultivation of aptitude in discerning historical relations. The study of civil government naturally attracts American boys, who in two or three years will find themselves complete citizens, and scarcely less interests their sisters. Much is done here by object lessons in the legislative halls, council chambers, and court rooms themselves, whither pupils are taken by their teachers to observe the processes of government in actual operation.

On the whole there is a positive tendency to secure in High School instruction the cultivation of the mental powers, and only incidentally to store the memory with facts. The results secured are directly proportional to the scholarship of the teacher and his skill in making the most of his material and opportunities. Those engaged in the work gather some comfort, however, from hearing the men and women of the colleges assert, as they do with earnestness, that they find the instruction in the secondary schools better done than that of the elementary schools.

RAY GREENE HULING.

HIGH SCHOOL,
NEW BEDFORD, MASS.

IV.

THE EDUCATION OF THE WILL.

All education is, in a sense, education of will. Of course, for scientific exactness, we distinguish will from other activities of mind, and we may for convenience here assume the ordinary psychological division into intelligence, emotion and will; but it is an elementary commonplace of psychology, that, though these activities are distinguishable in thought, they are not to be treated as if they were usually separated in mental life. Will is therefore not to be conceived as an activity in itself, capable of being isolated from intelligence and emotion. In such isolation it is an unreal abstraction, it is merely the abstract concept which physical science finds useful for its purposes under the name of force. As a concrete reality, will is active intelligence stimulated by emotion: or, as it may equally well be described, it is active emotion directed by intelligence.

But whatever may be the general relation of intelligence and emotion to will, there can be no doubt of the practical relation into which they are brought in educational processes. The education of intelligence is an exertion of will in directing intelligence to particular objects; the education of emotion is an exertion of will for the suppression of feelings that are inimical, and the stimulation of those that are favorable, to the well-being of man. All education is thus, in a sense, education of will.

But this very fact implies that will is not to be conceived as a force working *in vacuo*. It must have material to work upon —an object to be willed; and such object or material can be obtained only from intelligence and emotion. Moreover, education does not consist of sporadic, transient acts, that are performed without connection in any rational plan, and without leaving any trace behind. It aims at creating those tendencies which we call by such names as faculties, capacities, dexterities, habits; in a word, it seeks to develop a power of performing, without effort and even without thought, actions which at first can be performed only with deliberate attention, if not with painful fatigue. But for this power, life would not only lose all its pleasantness, it would cease. If after performing an action a hundred times it required as much effort as at first, no man could get through his day; he could not meet the most essential wants of hourly existence. This power forms the supreme reward of our educational labor; that is to say, all the excellence developed by education, is of the nature of habit.

But if will is merely an abstract potentiality until it has received its material from intelligence and emotion, it may be asked whether there can be any special education of the will. To answer this it must be observed that, ordinarily in education, we give prominence to the intelligence or emotion which is to be educated. Then the education is intellectual or emotional; it is a habit of intelligence or of sentiment that we are seeking to cultivate. But we may also abstract from what is being educated, and reflect on the educative power—the power that directs the education. We may inquire how that power is itself to be educated, so that it may be applied promptly and effectually to any material of intelligence or emotion. Such an education of the will places the copestone on the whole educational building. It determines the character which forms the guerdon or the doom of every man; for character, as we are reminded in the often quoted saying of Novalis, is a completely formed will.

To get at the processes by which this result is attained we must clear away various scientific problems which are connected with the process, but need not be allowed to complicate the educational problem itself. For educational science does not require us here to go beyond unquestionable facts. It requires as its data merely the fact of voluntary action and the fact of habit, comprehending of course the process by which habit is formed. We do not require to go beyond these facts into the theories by which they are explained in any department of science, physical, physiological, or even psychological. It is not of course meant that such scientific theories will not enable us to understand more fully the facts which they explain, or to see more clearly the bearing of these facts upon our methods of education. It is meant merely that educational science must not wait for the settlement of disputed theories about volition and habit, it must be founded upon undisputed facts.

This is peculiarly the case with the primary fact—voluntary action. Volition, it is well known, forms the subject of the most intractable problem—the problem which involves all other problems—in the range of human speculation. It is not to be denied that the solution of this problem is of infinite speculative interest in its bearing upon the origin and destiny of man; nor can it be denied that it may be of infinite value in educational practice to know whether a volition is simply a natural event absolutely determined, like any other, by its antecedents in time, or whether, in the act of willing, man comes into touch with an order transcending the order of time, and draws his inspiration from that higher source.

But the educationist cannot shut his eyes to the fact that this problem has not as yet met with any solution which is near being universally accepted; and therefore he must still base educational methods only on such assumptions as will be accepted equally by the champions and by the assailants of Free Will. Now, what is universally admitted with regard to the nature of volition? All are agreed that it is an action done with a view to some end; and this conception will be sufficient for our purposes at present. Before proceeding to an analysis of the conception, it is necessary only to observe further, that the end to which a volition points is generally, or rather always, complicated. The agent not only aims at a simple end which he desires to attain, but he seeks a nearer end or, more commonly, a series of nearer ends, which form intermediate steps, that is, as we call them, means, toward the attainment of his ultimate end. This conception of volition indicates the main steps in the process of educating the will.

I. Obviously the first step is an education of intelligence;

that is to say, the agent must form a clear cognition of the end he has in view, as well as of the means by which the end is to be attained.

1. In very early life end and means alike must be almost exclusively in the region of muscular activity; and an appreciable amount of subsequent educational labor might be saved, if those who have charge of infancy were taught to begin training the child to control his muscles voluntarily almost from the very first. Of course little can be done during the first few weeks of life; almost nothing, in fact, till the power of visual perception has been acquired, because the most valuable movements must be directed by visual images. Even the culture of visual perception, however, might itself be considerably quickened by early training of the eye; for it must be remembered that the complex cognition which we call vision draws an important factor from muscular sensation, and the first step toward distinct vision is the power of voluntarily co-ordinating the movements of the eyes so as to fix them steadily on one point. Something might be done to cultivate this power very soon after birth by holding and moving slowly before the eyes any brilliant object of simple outline, trying to attract the eyes toward it, and to make them follow its movements. There is no reason why training of this nature might not bring on at an earlier date the important achievement of nursery life, by which the child first begins to "notice things."

But muscular control is not guided solely by the eye. Such guidance, indeed, is of the highest value; but underlying all direction from extrinsic sources is that which the muscles receive from the form of sensibility now commonly known as the muscular sense. The educationist may at present overlook the conflicting physiological theories, which profess to explain this sensibility. For him it is enough that we can feel, even when we do not or cannot see, muscular movement. In this sensibility there are vast differences between individuals; and these differences are often congenital, often hereditary. But education can only make the best use of such natural organization as forms the inheritance of each individual; and it will be found in the long run that the greatest differences are due to the use which each individual makes of this inheritance. The tortoise may at any time outstrip the hare.

It is therefore extremely important to begin the voluntary direction of muscle as early as possible, and an early beginning is all the more important, as without direction a child is sure to strike into ways that are opened up by natural, unthinking impulse. The newborn infant's actions are all purely reflex, and for a long time the activity of a child continues to be mainly of this non-voluntary character. That is to say, the impressions made upon afferent nerves complete their circuit by diffusing their influence along motor nerves, sometimes with a sensation of the afferent stimulus, or (as some hold) of the efferent discharge, but quite as often with no sensation at all. The result is, that stimuli find an outlet in all sorts of unintelligent, aimless directions. This is observable, not only in the meaningless wrigglings of an infant's limbs, but in useless muscular disturbances all through life. You may see it in the comical twisting of features as well as in other needless gestures, with which a boy or even a man often sets himself to a novel task, like the handling of a pen; it startles you at times in the violent and widespread explosions of passionate anger or of uproarious mirth.

The consequence of this tendency is, that a child may easily fall into the wrong way of doing anything, unless he be taught the right way from the first; and therefore in many cases the task of learning is doubled by the initiatory process of unlearning. Accordingly, at this early stage education must help the child to pick out, by his own quickened sensibility, those muscular movements which are adapted to attain each particular end, and to stop at once any current of muscular stimulation that runs in the wrong direction. It is this that makes it so important, on beginning any part of education, such as writing, drawing, singing, playing on a musical instrument, to insist on the right muscular adjustment from the very first lesson; and it is exceedingly injudicious to allow any awkward maladjustment to become fixed by repetition, as is often done in perpetuating, for our own amusement, the pretty mistakes into which a child may fall, for example, in learning to speak.

2. The primary manifestation of will-power in the control of muscle has been described at this length because it illustrates in a simple form the more complicated applications to larger ends, for in these also will implies intelligence for its direction to the ends of human life and the means by which these are to be attained. Here, therefore, lies the value of a general culture of intelligence for the education of the will, because a disciplined intelligence can of course discover more clearly the rational ends of life, and can master more rapidly the most effective methods by which they may be achieved. But power of will implies not only that a man is generally expert in applying intelligence to any object; it requires, for its highest achievements, that he should be specially an expert in the particular sphere in which his will is to be exercised. He must, in the fullest sense, know what he is about; and the language of men testifies to their general experience, that "to know how to do a thing" is identical with "being able to do it." *Can* has kinship with *ken*, *können* with *kennen; savoir faire* is *pouvoir*, and long before the time of Bacon it was a familiar fact, that "knowledge is power."

II. But knowledge in itself is not action. There may be a calm contemplation of an end as well as of the means for its attainment, without any appreciable stirring toward activity. "Axioms are not axioms till they have been felt upon our pulses," said Keats; and the saying embodies an important psychological truth, at least when it is referred, as was evidently intended, to axioms of conduct. Such axioms are not really grasped in their essential nature as practical truths till they have sent a thrill through the emotional life; only then do they become motives of action. It is true, there is a certain class of actions—so-called ideo-motor actions—which are sometimes described as if they followed immediately from a mere intellectual representation without the impulse of any emotion. We need not, however, interrupt our exposition in order to take account of such actions; for the education of the will would become impossible if they were taken as the type of activity in general. In order to make any action easy and ultimately habitual, it is extremely important to enlist a strong emotional interest by helping the learner to find pleasure in the object sought as well as in the means by which it is to be reached.

The value of this fact is, indeed, at times over-estimated, at least in the training of intelligence and will. All sorts of royal roads to learning, short and easy methods of mastering a science or a language are proposed, as if the pleasurable interest of the process were more essential than the result to be attained. It is often forgotten that the highest excellence, intellectual as well as moral, may be reached only by forcing ourselves to like a subject, forcing ourselves to adopt a course that is naturally uninviting. The wise teacher will, therefore, call the emotional impulses to his aid; but he will be perpetually on his guard against the danger of allowing them to get beyond his control. For, though a useful servant, emotion is a tyrannical master; or, to change the figure, though it may be a kindly breeze to waft the will to its haven, it may become an irresistible storm in which all intelligent volition is wrecked. The undue development of the emotional side of human nature lands in two sorts of faults. (1) It renders men liable to emotional disturbances which may be too violent to be controlled by reason, and may sometimes find vent in directions extremely disastrous to the power of will. (2) But there is an effect which is still more enervating to the will, and that is the degeneration of healthy sentiment into an unhealthy sentimentality. This effect is peculiarly apt to be produced in minds of sufficient refinement to enjoy literature or art, and thus to experience the generous emotions of intellectual and moral life. The mind is then apt to dally with its own pleasurable feelings; an idle dilettantism takes the place of earnest study, and a passive indulgence in the luxury of moral sentiment incapacitates for the active luxury of doing good.

III. These dangers can be avoided only by the culture of will, in the stricter sense of the term. For a volition implies more than a cognition of an act to be performed, more than an emotion impelling to its performance. These are, indeed, as we have seen, not only important factors of voluntary action, they are its indispensable prerequisites: and woe to the man who cultivates energy of will without the guidance of reason or without the amenity of genial sentiment. For him force of character hardens into that unreasoning obstinacy in which

> Stat pro ratione voluntas.

This is that inertia of brute stupidity, against which, we have Schiller's authority for saying, the gods themselves fight in vain. Still, however essential intelligence and feeling may be to will, they do not form an actual volition. It is true, the distinct cognition of an act implies a veritable re-presentation or re-production of it, not only in consciousness, but in a thrill through the muscular region which would be called into play if the act were really performed; and if the cognition is accompanied with emotional excitement, the muscular thrill will show an almost irresistible tendency to pass from a scarcely perceptible twitch into overt action. But the cognition and emotion are not the overt action itself. At most they form the conscious state which is described by words expressive of desire. This state, with its nascent, but abortive muscular throb, has been happily described by Hobbes as "the small beginnings of action"; but it is not action completed. A real act of will implies an additional factor—the fiat which transforms into actual fact what was previously a mere thought of something to be done.

Now, it is precisely because all the preliminaries of intelligence and emotion may be realized, and yet life may stop short of this culminating act, that culture of will, in the strictest sense of the term, becomes such an important factor in education. The fact, that clear intelligence and delicate sensibility may thus be divorced from energy of will, is obtruded with startling distinctness in those extreme cases, not unknown in medical practice, in which the divorce implies a morbid paralysis of human faculty. In such cases you may find a man, of at least average intelligence and refinement, conceiving clearly what is to be done, and feeling a strong desire to do it, yet utterly powerless to put forth the fiat of will, by which alone his desire can be carried into effect. Phenomena of this nature are fully described in special monographs like Ribot's *Les Maladies de la Volonté*, but they are subjects for the physician rather than for the educationist. They are noticed here merely for the purpose of bringing into vivid relief that crowning fact in human life, which transforms cognition and feeling into an act of will.

It is evident, that, in training decision of character, there are two activities to which it should be directed. The first decides upon the aims of life; the second, upon the means by which these are to be secured.

1. The first requisite of a firm will is an unalterable decision with regard to the object that is to be willed. Of course here intelligence must be called into play in selecting between conflicting alternatives of conduct, and a great deal of fickleness is due to imperfect intelligence failing to see clearly the preponderance of reasons in favor of one course. But, as explained at the outset, intelligence is not a passive state, but a voluntary activity of mind; and therefore a wavering purpose arises, perhaps most frequently from the energy of intelligence never being directed by any earnest effort of will to the practical settlement of the question at issue. Evidently, however, there are men who can, and do exercise their intelligence upon such questions, but without coming to any vital decision. They can never make up their minds, but remain in idle suspense between the rival claims of different courses, for all practical purposes paralyzed in reality as Buridanus fancied an ass would be if placed between two equally attractive bundles of hay. In such cases activity never gets beyond an occasional coquetting with different plans, when the necessities of life force some sort of decision for the moment. For the education of the will, therefore, it is of prime importance, not only to analyze the reasons in favor of different courses, but,

after analysis, and even in spite of speculative doubts, to form a settled determination with regard to the course which is to be practically carried out. Whenever intelligence decides upon a course, the force of the emotional nature may be called to confirm the decision; and it is for this purpose that various artifices have been devised, such as vows, pledges, official oaths, which bind men to their decisions by powerful motives. Any irrevocable act in life, by which a die is cast, a Rubicon crossed, is of value. Such an act becomes, in some cases, an insuperable, in all a formidable obstacle to prevent the agent from looking back after he has put his hand to the plow.

2. But the selection of an end is fruitless, if the means for its attainment are not adopted; and here there is room for a second form of indecision. For there are men who, while recognizing with clear intelligence the superiority and even the obligation of a particular course, remain satisfied with a merely sentimental recognition of the fact. In truth, most men, whatever may be their general strength of character, leave themselves at times the victims of this idle musing over work to be done at some more convenient season; and few reach middle age without finding the track of memory strewn with wrecks of plans which might easily have been carried out by a prompt resolve at the proper moment and by stability of purpose during hours that have been otherwise frittered away. Not infrequently the whole life may thus become an irreparable failure, when a man continues, year after year, toying with pretty ideals which, in a vague sort of way, he intends to realize, but in regard to which he never forms any effective volition. Johnson said truly that the limbo in which such abortive lives find themselves at last, is paved with good intentions.

Now it is obvious that both these forms of indecision in character can be avoided, not by merely letting the will develop itself under any haphazard influences to which it may be subjected, but by adopting, in our educational methods, a specific discipline for its training. You do not learn a science by merely picking up such facts as may drop on the path of common experience, nor do you learn an art by the occasional clumsy attempts to practice it, which may be forced upon you by the necessities of life. In both cases it is always assumed, as a matter of course, that a special education is absolutely indispensable, and yet this simple fact is to a large extent ignored in our educational systems, so far as regards any provision for training the will. It is true the whole life of a well-conducted school does incidentally involve some invaluable discipline in voluntary control. The regular routine, its punctual observance, the staid behavior within school, the exaction of tasks that are not always agreeable—all this tends to introduce a rational order into the licentious chaos of a young life; and it is in view of this fact as well as for the loss of intellectual instruction that a teacher is very properly regarded as a failure, if he is not a good disciplinarian as well as a good scholar.

But, however valuable the systematic arrangements in the external life of a school may be for developing orderly habits in the internal life of the pupils, it wants the peculiar element that is required for educating the will. Its regulations are imposed by an external authority, and they are obeyed mainly from the conviction that they will be enforced. To a large extent, therefore, positive work is done under the impulse of an external constraint, while the child refrains from natural ebullitions of feeling under the impulse of external restraint. This is illustrated by the disorder which inevitably breaks out in a class whenever it is discovered that the teacher is without the requisite tact for maintaining discipline, and by the explosion of riot which commonly accompanies the dismissal of a school. What is wanted, therefore, is a discipline which the individual imposes upon himself—a discipline in which he forces himself at times to do what is painful or to abstain from what is pleasant, not because the painful act is obligatory in itself, or because the pleasure is in itself wrong, but simply for the purpose of cultivating strength of will.

But not only are our educational methods defective in failing to provide any such discipline for the education of the will, the whole temper of our age seems to be represented in this defect. In the great industrial communities, especially of Protestant Christendom, rational *ἄσκησις* has disappeared almost as completely as asceticism. The elaborate system of fasts and penances in the Catholic Church was, in its essential spirit, an admirable discipline for the will. It cannot be denied that the system became corrupted with gross abuses; but without questioning the general gain to the moral life of the world by the protest of the Reformers against those abuses, it may be feared that Protestantism has thrown away a valuable instrument of moral training by abolishing those old penances and fasts without providing any adequate substitute. The corruptions of the mediæval system arose mainly from its publicity, which gave an undue value to the overt action without reference to its spiritual intent. Such publicity ran strangely in the face of explicit warnings which had been uttered by the Great Teacher himself. In the light of those warnings it is obvious that the value of all such disciplines for the training of the will must depend on their internal character. They must avoid unnecessary publicity; they must be conducted so as not to be seen of men. But any human being, who quietly and unostentatiously resolves to deny himself an allowable pleasure, or subject himself to a hardship that is not absolutely obligatory, in order that he may school his will into habits of self-control, is drawing upon the universal fountain of spiritual power, and assuredly he shall have his reward.

J. CLARK MURRAY.

McGILL UNIVERSITY,
MONTREAL, CANADA.

V.

DISCUSSIONS.

THE USE OF TEXT-BOOKS IN TEACHING ELEMENTARY SCIENCE.

The student who desires to learn the properties of a substance or the facts concerning a phenomenon, will derive material benefit from obedience to the precept "Study things themselves, not statements about things." He who would learn a process had best "Learn to do by doing," and thus obtain both intellectual and manual training in his art. His knowledge will in each case be better than if he had simply memorized the facts and processes, and he will have acquired it by the "natural method." These are points in which the laboratory method of teaching elementary science is superior to any other, and if the subject is pursued because of the utility of the facts, it is by far the best method; but the acquiring of facts and the mastery of processes are not the chief ends of education; they are rather the tools which the teacher uses in his work.

Admitting the great value of all objective teaching as an adjunct, it may justly be claimed that that mental exercise which compares and classifies the facts and processes, and without which they do not constitute a science so far as the individual pupil is concerned, is far more valuable. This subsequent work educates the pupil, the laboratory work without it, merely informs him, and the laboratory method will have culture value only in so far as it compels or induces this comparison and classification of phenomena. In all elementary instruction it is essential that the teacher hold the pupil to his work, and that he require of him evidence that it has been done, and that he has given to the subject a sufficient amount of thought to make the words which he uses his own. If the teacher does not do this, it is likely that much of the thinking will never be done, and that the laboratory practice will result only in the amusement of the pupil.

A certain amount of didactic work in connection with laboratory practice will enable the teacher to test the amount of mental activity which the experiments have induced, and to satisfy himself that the facts are gradually becoming a science, but this method involves great loss of time. The student prepares a lesson one day and recites it the next, and the rate of progress is controlled by the number of experiments that the pupil can perform in one period. Furthermore, if the instruction is limited to laboratory work and recitations about the experiments performed, it will necessarily be fragmentary, not only because of the increased amount of time required, but because many important topics cannot be illustrated by elementary experimentation; in physics, for example, the law of gravitation must be omitted, if the pupil be required to discover everything for himself. The text-book, then, is necessary to the symmetrical treatment of a science, and an elementary treatment should be symmetrical, whether the subject be pursued as a stepping-stone to subsequent special work, or on account of its disciplinary and utilitarian value.

It is claimed by those who would discard the text-book that the imperfect definition framed by the student himself is of more value than the perfect definition learned from a book. Experience shows that the student's attempts are generally misleading and valueless, except as they furnish excellent opportunities to illustrate the time-killing Socratic method of teaching, and the vague knowledge obtained does not compare favorably with the exact knowledge obtained by the pupil who learns the perfect definition, and, after illustrating it in the laboratory, is asked to justify each word. The knowledge obtained by medical students through their work in the dissecting room, which is so frequently contrasted with knowledge of anatomy obtained through the study of text-books, is valuable because it is guided and rendered complete by a text-book. Could the medical student afford to dispense with his text-book on anatomy?

Whatever objections may be urged against the text-book, it has not yet outlived its usefulness, for the results yielded by the laboratory method cannot equal those obtained from a combination of the text-book and laboratory methods. The text-book gives the pupil a broad view of the subject, looking through the author's eyes, and he thus obtains what is unquestionably desirable in elementary instruction, namely, a view of the subject in perspective. There is no part of the pupil's work which leads him to see the exact relationship between one topic and another as clearly as a thorough review at the close.

Unfortunately our elementary text-books are not without their faults. Few authors give enough attention to the logic of the subject, few show the student why scientific men have reached a given conclusion or have adopted a given theory; and many authors, wishing to compel the student to think, sacrifice their clearness of thought and definiteness of statement on the altar of this principle of pedagogics, and in endeavoring to "leave a little for the pupil to think," set a task which he cannot perform.

ALBERT L. AREY.
ROCHESTER ACADEMY,
ROCHESTER, N. Y.

Any discussion of the relative value of different methods of instruction must be based upon an agreement as to the aim to be accomplished. Education has been aptly defined by Joseph Payne as "The training carried on consciously and continuously by the educator, and its object is to convert desultory and accidental force into organized action." It is a generally accepted principle that the work of the educator consists only in bringing the pupil into such conditions and surrounding him with such influences as will call forth the kind of activity which the teacher is seeking to develop, and that it is only what the pupil does for himself that gives him strength and independence of thought.

Acting upon this principle, teachers of mathematics have given their pupils problems to solve, and teachers of classics have not encouraged their pupils to study Latin and Greek from texts with interlinear translations. The best teachers of history and literature no longer require their classes to memorize ready-made generalizations and to read only for the purpose of finding illustrations of these laws, nor to recite approved criticisms of literary masterpieces which the pupils have never read. These studies have, accordingly, long taken high rank for their disciplinary value; and, because of the way in which they have been taught, and not on account of any inherent superiority in their material, they have taken the leading place in most educational schemes.

Many teachers of science believe, however, that the consideration of natural objects and phenomena with the purpose of determining their causal relations to one another may also furnish a valuable mental discipline, and one which cannot be so well acquired from any literary or mathematical study. Some of the advantages of this method are: (1) The facts whose relations are to be considered are parts of the individual experience of the pupil, instead of the imperfectly comprehended statements of the experience of some one else; (2) the determination of the relations which constitute the general principles of science may furnish the best possible field for training in the inductive process; (3) the application of these general principles to special cases which were not considered in making the induction, may furnish material for valuable training in the logical process, because the relation of the individual cases already studied to the general principle, must have been clearly seen before the induction could be made, and because the conclusion arrived at by the deductive process can usually be subjected to the rigid test of experiment, and its validity definitely determined.

It seems plain, however, that if this training is to be acquired from the study of science, the student must pursue it in the order named, *i. e.*, he must first observe, then generalize, then test the accuracy of his generalizations by drawing logical conclusions from them and observing or experimenting to verify his conclusions.

The text-book of science, not including laboratory-guides and observation-outlines, which leave the pupil to draw his own conclusions, is a treatise prepared on the logical method, and gives training, at the best, only in the logical process. The so-called inductive text-books arrange their descriptions of experiments more or less in the order of induction, but they require no real observation and experimentation on the part of the pupil, and by stating for him the generalization which is supposed to follow from the experiments which they describe, they remove all necessity for inductive reasoning on his part.

Indeed, so strongly has this method taken hold of our teachers of science, that in our leading colleges the experimental work is generally preceded by a text-book or lecture course on the subject, and in the laboratory manual which is most commended by teachers of the writer's acquaintance, the author recommends that no problem be assigned to be worked in the laboratory until the pupil has learned from the text-book exactly how the experiment should result. To my mind, this is equivalent to saying that a pupil should never be allowed to undertake the solution of an algebraic equation until he knows the correct values of x and y, nor to read a Latin sentence until he has learned and recited the English translation.

In short, if we are to use the material of the sciences as a means of calling forth the mental activity of our pupils, we can do it only by allowing some opportunity for independent thought on their part, and the intervention of a text-book between them and the material which we wish them to study must always be a hindrance rather than an aid.

Without taking time to discuss the argument which is always advanced for the use of text-books, viz., that the time allowed for scientific study in school is too short to acquire the amount of knowledge of this subject which every pupil should have, unless he crams the knowledge from a text-book, it may be said that the quality of the knowledge which one possesses is of more importance than its quantity, and that one does not need to be a specialist in science to enable him to distinguish between the knowledge acquired by direct contact with natural objects and phenomena, and the " vast and varied misinformation " acquired by the literary method of science study.

FERNANDO SANFORD.

LAKE FOREST UNIVERSITY,
LAKE FOREST, ILL.

TEACHERS' SALARIES.

Were it possible to pay each teacher just what his or her services are worth—to make the remuneration proportionate to the quality of the service—an ideal system would be the result. There are public school teachers in every large city for whom no reasonable compensation would be too high. There are those for whom the lowest wages now paid would be beyond their deserts. Could the merit system of payment for public school teachers be introduced, many of the difficulties that now disturb boards of education would be at once eliminated. To get rid of a lazy or inefficient principal or teacher, it would be necessary only to make his salary sufficiently low. To reward merit, and to obtain the services of the most skillful teacher, it would be necessary only to make the salary sufficiently high. The highest teaching ability is always at the command of a board of education that will honestly look for it, and that is willing and able to pay the requisite price. Other things being equal, men and women will seek that employment which gives them command of the largest amount of the good things of this life.

Unfortunately, the objections to the merit system of grading teachers' salaries are practically insuperable. It opens wide the door to favoritism of the most flagrant kind. The power that determines salaries is generally devoid of the special knowledge needed to determine degrees of merit. In private business, the matter is very different. There, the self-interest of the employer forces him to use his best ability in grading the salaries of his employees. He has every possible opportunity to discover what their merits are, as well as the special knowledge required for the purpose. A board of education has neither.

For this reason, it has been found necessary to establish schedules of salaries. In some places, salaries are increased according to length of service; in some places, according to the grade taught; in others, they are determined partly by one and partly by the other consideration. In a few cities the maximum pay in primary grades is the same as the maximum pay in grammar grades, but in most places it is much lower. It is in accord with the best established business practices that a beginner's salary should start at a certain point and advance with a fixed increment each year until a maximum is reached. But it is not in accord with sound business principles that there should be so great a difference as we sometimes find between the maximum salary in primary grades and the maximum salary in grammar grades. There is no difference either in the amount or in the character of the work to justify the discrimination against the primary teacher. It may be somewhat harder to manage children of twelve than to manage children of seven, though even this is doubtful; but, if it be more difficult to keep order in a class of older children, the difference is more than compensated by the fact that the teacher of younger children has usually a much larger number under her care. Boston has set a good example in making the maximum salary for all grades, except the three highest, the same. This maximum—$816 per annum—it is safe to say, is the highest average salary paid for primary teaching by any large city in the country. The time has arrived when all large cities must raise the salary schedule at least as high as that of Boston, or else fall steadily behind in the educational race. The reason is obvious. It cannot set a high standard either of scholarship or of professional attainment. The teaching force is recruited almost exclusively from local sources. Local influences will inevitably prevent the establishment of a high standard for entrance to the teaching profession, so long as the compensation finally attainable is so low as not to justify elaborate preparation. Few men will undertake the expense of a systematic course of training for their daughters, if the ultimate compensation will barely suffice to keep body and soul together. Low salaries have had more to do with preventing the general spread of professional training for teachers than any other single cause. Hence, low salaries have done more than anything else to keep the standard of instruction low.

The argument against reasonably liberal salaries—that the supply of competent teachers is greater than the demand—is now heard in boards of education less frequently than in former times. In the first place, the avenues for lucrative employment that have been opened to women, are now so numerous, that many of the ablest among the graduates of our high schools no longer look to teaching as a means of livelihood. The vast development of secondary education in the shape of high schools which this country has witnessed during the last ten years, has itself attracted to these institutions many of our ablest and best educated women, who would otherwise have found their way into the primary schools. The young man or young woman who desires to teach prefers to take a college or university course and prepare himself or herself for high school work rather than to go directly from the high school to teach in a primary grade. Nor is this all. The medical profession and journalism are every year attracting a larger number of gifted and cultured women, who twenty years ago would have become teachers; while commercial pursuits, such as type-writing and book-keeping, are drawing away thousands who, with proper training, would make excellent instructors. It has come to pass that the great majority of public school teachers are women; and there are very few women who would not prefer teaching in a high school, or even the longer hours of business vocations, to controlling the restless spirits and breathing the vitiated atmosphere in a primary class-room. Hence it happens that the supply of competent teachers is no longer greater than the demand, if, indeed, such were ever the case. On the contrary, there is probably not a large city in the country that is not experiencing great difficulty in obtaining the requisite number of trained teachers.

The demand for such teachers was never so great as at present, and it is constantly on the increase. The curriculum cannot be confined to the "Three R's." The time has gone by when "hearing lessons" could be regarded as teaching. Scientific methods of teaching all the standard subjects are now a *sine qua non*. Moreover, drawing, manual training, natural science, are all slowly but surely effecting an entrance into the school-room. Your untrained or inexperienced teacher is as incompetent to teach according to scientific methods or to deal with the new subjects of the curriculum, as a hod-carrier is to run a steam-engine. Boards of education, though slowly, are beginning to recognize the fact that this is pre-eminently an age of specialization, and that above all other walks of life the teacher's calling requires special preparation.

Trained teachers must be obtained. For the teacher without training and without experience, salaries cannot be made too low. The trained teacher, or the teacher of experience—that is to say, if the experience has been good, and not, as it very frequently is, bad—should receive a salary that will enable her to live as befits a member of a liberal profession and to pursue the means of culture, without which she will almost necessarily retrograde.

A large city cannot do better than to follow the example of Boston in two things: First, to require that all teachers shall either have professional training or successful experience; and, second, to place salaries at such a standard that the supply of such teachers will at least equal the demand.

WILLIAM H. MAXWELL.

BROOKLYN, N. Y.

VI.

EDITORIAL.

There is a distinct movement in this country toward the elevation of the standard of admission to the professions of law and medicine. The superficial and inadequate instruction that is given in all but a very few professional schools, has so far attracted public attention that the legislatures are busy passing laws instituting state examining boards and providing that a professional diploma or degree shall not, of itself, be a license to practice. This is a wise and proper way to fix an acceptable minimum requirement; but when this has been accomplished, the duty of the great universities of the country has only begun. It is their function to teach law and medicine scientifically to students equipped by previous training for such work. For a university to content itself with being a mere adjunct to the state examination, is to forfeit all claim to public respect and confidence. The university teaching of law and medicine is not for the purpose of manufacturing as many practitioners as possible, but to furnish to the country scholarly and well-trained physicians and lawyers. This cannot be done by any institution that has an eye single to the fees to be collected from its students or that encourages students to divide their attention between their professional studies and some other occupation, gainful or not.

There are many successful professional men who write and speak atrocious English, and whose ignorance of the subjects that form part of a college education is profound. They are not creditable representatives of the intellectual life of America, and it is high time that some courageous university took the lead in cutting off the supply of such individuals. It is not possible now, nor will it be for some years to come, to insist upon a college education as a prerequisite for admission to the practice of law and medicine. Public sentiment is not educated up to that point. But there is no reason why a university should continue indefinitely to admit to its professional schools, students who would be denied entrance to the freshman class of a college. At one or two of the larger universities there are already enough college graduates enrolled in the professional schools to make a creditable showing, even if all others were excluded. At the Harvard Medical School last year out of 304 students, 156 held literary or scientific degrees. At the Harvard Law School, 102 of the 153 students entering were college graduates. At Columbia College, for the decade between 1880–90, the proportion of students in the Law School who held preliminary degrees was 44 per cent., and in the Medical School it was 35 per cent. Harvard and Columbia, therefore, would have large schools of law and medicine, even if none but college graduates were admitted. It is their duty, as it would be to their honor, to take this forward and upward step.

Pending this important advance, another is in a fair way to be realized. The Johns Hopkins University has received about $280,000, toward the fund of $500,000, that is to endow a medical school open to women on the same terms as to men. Miss Mary Garrett of Baltimore has been the most liberal donor to this fund, and, aided by committees of women in various parts of the country, has been largely instrumental in securing the large amount already obtained. This episode affords another instance of the fact that a university which keeps in contact with progressive educational thought, can always secure the funds necessary to carry out its well-considered projects.

England is in a state of excitement over the proposition of the Conservative Chancellor of the Exchequer, Mr. Goschen, to employ the treasury surplus for the purpose of abolishing the fees now charged to pupils in the elementary schools. The official proposition is that after September next elementary education shall be free. To Americans this does not seem very startling, but the Briton looks at it through other spectacles. Not only does it run counter to his national traditions,—for England has been the last civilized country to appreciate the importance of elementary education for the whole people,—but it is involved with the question of religious teaching and the Established Church. The Church schools now occupy a privileged position, and one which they will not surrender without a struggle. The Liberals will be sure to insist that the school boards must be elective, if the schools are to be entirely dependent on taxation for their support. This step will be bitterly opposed by the managers of the Church schools, and the Conservatives will probably offer some form of compromise. The outcome will be watched with interest in this country, where a contest on the religious question is plainly impending.

Commissioner Harris's suggestion that a series of informal conferences on specific points in educational theory or practice, be held at Toronto during the meeting of the National Educational Association, is bearing fruit. Four or five such conferences have been arranged, and the subjects are very happily chosen. The plan is to discuss informally certain topics with a view to formulating conclusions regarding them. These conclusions will be published as part of the proceedings of the Association, and will mark such real progress as is made from year to year.

To one accustomed to attending educational gatherings, the amount of chaff mixed with the wheat is very discouraging. The same platitudes, the same professional readers of papers, the same veteran voices are heard year after year; there is a good deal of what is called "inspiration," but precious little progress. It is hoped and expected that the Round Table Conferences at Toronto will accomplish something.

The season of college commencements is near at hand, and there will be the attendant and familiar outpouring of fervid oratory and crude thought, on profound problems of every sort, by inexperienced and half-trained students. It is urged in defense of this practice—for nearly everybody admits that it needs defense—that Commencement Day is peculiarly a students' celebration, and that on it they should be put forward as prominently as possible. This argument does not occupy a very elevated point of view, and, in addition, confuses two distinct things—the students, who are temporary, and the institution, which is permanent.

Each Commencement Day marks another mile-stone passed in the history of the college or university, as well as the formal severing of academic relations by a class of students. If the latter event needs celebration it should find it in Class Day, which is peculiarly and properly a students' institution that has come to be recognized everywhere. Commencement Day, however, should be reserved for more important and significant things. In addition to the announcement of degrees and honors, the college or university should, by some of its officers, make to the world its report of progress accomplished. Some advance in science or some triumph of literature should be announced, criticised, or commented upon. The teaching body is the college, or university either, and its representatives, not those of a class of callow youths, should be heard at commencement. The dignified celebration of Commemoration Day at the Johns Hopkins University might well serve as a model for Commencement Day elsewhere.

Although the Harvard Overseers have negatived the proposals of a majority of the faculty looking to a shortening of the time necessary to take a degree, and to certain correlative changes, their decision cannot be regarded as final. The position of President Eliot and those who agree with him is too strong, and the needs they are striving to meet too real, to let the matter rest indefinitely as it now is. Already the students are acting upon the new idea. Each year an increasing number present themselves for the baccalaureate degree after a college residence of but three years. Hard work and faithful use of the long vacations make this possible.

It will probably be found that most, if not all, of those who thus bend their energies toward reducing, by one quarter, the term of college residence, are on their way to a professional school. For such students seven years of training—four in the college and three in the professional school—are too many, beyond any question. If the college course is not shortened, it is very probable that the so-called Columbia plan will come into general use at those institutions that are colleges and universities combined. For the student who does not expect to pursue a professional course, the college curriculum will remain four years in length. For the student who is preparing for the law, for medicine, or for the church, the more elementary and general professional studies will be accepted as part of the requirement for the baccalaureate degree, and thus the desired reduction in time will be accomplished. Signs are not wanting that this will be the outcome of the present movement.

VII.

REVIEWS.

Animal Life and Intelligence.—By C. Lloyd Morgan, F.G.S., Professor in and Dean of University College, Bristol. Boston: Ginn & Co., 1891, pp. xvi, 512.

Students of education will be interested in this volume for two reasons: because it treats of a range of topics the outcome of which will seriously affect educational views and methods, and, secondly, because it is itself an excellent educational help for securing a knowledge of these problems. Professor Morgan's volume deals with the central problems of modern biology, life and intelligence, and he brings to bear upon them all that is interesting and suggestive in the recent studies of these ever new questions. The opening chapters describe in a style attractive and popular, without sacrifice of accuracy, the general characteristics of the animal world, the origin and growth of functions, the variety of adaptations by means of which life is molded and continued. We then have three important chapters dealing, under the headings of "Variation and Natural Selection," "Heredity, and the Origin of Variations," and "Organic Evolution," with the typical factors of the relation of organism to environment, and of the forces by the action of which modification and progress is possible. The second portion of the work opens with an admirable chapter upon the senses of animals, in which the point is well emphasized that a correct understanding of sense-function must consider the immediate, useful applications of the senses under natural conditions. A brief exposition of the chief forms of mental processes is then given, clearly stating the prominent distinctions and the reasons for their hierarchical arrangement. The powers of animals then come up for detailed consideration under the usual division of the intelligence, the feelings, and the will. A final chapter on mental evolution, in which a general theory of the relation of mind to matter is offered, completes the work.

It will thus be seen that we have here, between the same covers, a convenient treatise on the general problems of comparative biology and comparative psychology; and this connection is significant. It places the emphasis upon the view that the two are inseparable, and that no knowledge of mind is either complete or correct that neglects the wide range of mental phenomena in the animal world, and the purely natural conditions by which these functions are conditioned. While much of the volume is in the main expository, there is considerable originality both in the mode of treatment and in the putting forth of novel views and combinations of ideas. It is in every way a work evidencing ability, skill, clearness of statement, and a desire to be useful. It may safely be recommended, with assurance of interesting reading, as the best single work whereby to gain an insight into the chief problems of life and intelligence.

JOSEPH JASTROW.

UNIVERSITY OF WISCONSIN.

Psychology.—By MICHAEL MAHER, S. J. London: Longmans, Green & Co., 1890, pp. xvi, 569.

This book, by the professor of mental philosophy at Stonyhurst College, is the latest addition to the series of Catholic manuals of philosophy. It is a sober, scholarly, and important book. The author's conception of psychology is not that of the contemporary school of experimentalists. They rest content with describing psychology as a natural science, and deny to metaphysics any entrance to its domain. Professor Maher stands on the ground occupied by his scholastic predecessors and sees in psychology a science, to be sure, but an integral part of philosophy as well. His view is that if psychology is to justify its title to be considered a department of philosophy, "it is bound not to be satisfied with mere generalizations of facts; it must pass on to inquire into the inner nature and constitution of the root and subject of these phenomena; it must ascend from the knowledge of the effect to that of the cause (p. 3)." Empirical psychology must, then, be interpreted by rational psychology. From this standpoint and by the only method open to him, the author constructs a treatment of psychology that is simple, logical, and graceful. His definitions are clear and precise, his style is crisp and nervous, and his knowledge of the literature of his subject is very considerable. Professor Maher might easily have passed by entirely many of the modern doctrines as immaterial to his treatment of psychology; but he does not do so. Some of the well-known positions of Wundt, Mill, Bain, Spencer, and Sully are stated and considered. Aristotle and Thomas Aquinas, however, weigh more with him than do the modern investigators who see in rational psychology and metaphysics only a stumbling-block.

It must be borne in mind that the author's general philosophical views have determined for him in advance the standpoint and method of this work. He holds that philosophy must and does dominate science, whether mental or physical. His position is perfectly intelligent and intelligible, whether one sympathizes with it or not. The prevailing view, and as it seems to me the truer view, of psychology is a different one. Nevertheless the careful study of Professor Maher's book will suggest many difficulties and apparent inconsistencies in the more usual mode of treatment that it may prove troublesome, or even impossible, to remove. However this may be, it is certainly instructive to attend to a careful discussion of familiar facts from a standpoint at variance with that which we usually occupy. It would be valuable if it only served to lessen the conceit and intolerance that have sent so many of our modern scientists into the ranks of the dogmatic philistines.

In one of his foot-notes the author puts very clearly an interesting suggestion of the physiological psychologists. He says, in reference to association by similarity and contiguity: "The physiological counterpart of the law of similarity probably lies in the increased facility of the same nerve-centers to act a second time, that of contiguity in the tendency of groups which have acted together to do so again."

N. M. B.

Switzerland.—By Lina Hug and Richard Stead. New York: G. P. Putnam's Sons (Story of the Nations Series). 1890, pp. xxiii, 430.

The authors in their preface say that an account of the early history of the people who founded the Swiss League, in 1291 A. D., should be given. It must be admitted that no history of Switzerland can be considered complete that does not embrace in its pages somewhat of the history of those times when Charlemagne, Charles the Bald, the Zaerings, the Kyburgs, and the Houses of Savoy and Hapsburg were prominent in the battles and struggles of the people who inhabited Switzerland prior to 1291, and whose desire to throw off the rule of various masters led them to form the League of that year.

The account of the early history is rather difficult reading, the authors seeming uncertain as to the use of the ancient or modern names of places, and one becomes confused when he reads of a town by its ancient name in one chapter and its modern name in the next. There is much also that is redundant and unnecessary to the story of the building of the nation, and the mind drifts from the story of the Swiss to matters which seem to have little or no connection with the Swiss people. This is intensified by the style, which is verbose, and relies upon punctuation and dashes to convey the authors' meaning rather than upon the words. As examples of this we may quote the following passages: "Their efforts to restore separate or self-government — the passionate yearning for national independence, innate in the German tribes, has done much to bring about the divisions of the German Empire into its many kingdoms, principalities, and duchies—met with far steadier and more violent opposition than was the case with the Burgundian." And again, "Jurisdiction, military command, summoning to wars, raising of taxes, fishing, hunting, courage, had become royal prerogatives—and the farmers kicked against the impositions—these were the functions of the governing courts."

The history of the fifteenth century, in which the cantons began to occupy different positions, one to another, some being subject to the federation and others to single cantons, some as inferior allies, with limited rights and privileges, and others as mere *protégés*, is interesting. It is followed by the account of the inter-cantonal wars and difficulties which make up a large part of the history of the Swiss.

The history of the three following centuries, while the Swiss are becoming noted as mercenaries and ready to serve any one for hire, embraces also the period of the Reformation. The narrative of this period is clearly told. The importance of the religious and political movement of this time, the touch of personal interest aroused by the description of the lives and character of Zwingli and Calvin, hold the reader's close attention. This portion of the book and the further account of the reaction which set in after the almost universal triumph of the Reformation, the effect of the reaction upon the cantons and upon the confederacy is interesting. From this period to the end of the book there seems to be but one thing in the mind of the authors, *i.e.*, to cover the period in a limited number of pages, and the development of the constitution under the different forms it assumed from time to time is not satisfactorily treated. The reader cannot but feel that the later history has been slighted for a large mass of early legendary tales.

STEPHEN G. WILLIAMS.

NEW YORK.

A Guide Book to the Poetic and Dramatic Works of Robert Browning.— By GEORGE WILLIS COOKE. Boston: Houghton, Mifflin & Co., 1891, pp. xvi, 450.

This work, as its title indicates, is one of the numerous "helps" toward the study of Browning which the present interest in his poetry has called forth. Some of these helps are of real service to the Browning student, as is noticeably the case with Nettleship's Essays and Mrs. Orr's Hand-book. Others are either crude, ill-digested, misleading criticisms on particular works of the poet, or they are compilations of second-hand material, made up from Dr. Furnival's Bibliography of Browning's works, the Browning Society Papers, Mrs. Orr's Hand-book, and the various encyclopædias. Of this latter class is Mr. Cooke's *Guide-book.* It is nothing but a compilation of names, facts, and opinions, ill-arranged, and virtually unindexed, which the Browning student can easily find elsewhere. Taking it all in all, one would have to go far to find a worse specimen of the trade of book-making. As a matter of fact, the only feature that entitles it to be called a book is that it is printed and bound. It has no originality in matter or in treatment; and the order adopted is illogical and confusing. The work cannot, of course, be read consecutively any more than a dictionary; for the poems and proper names (such as are introduced) are arranged alphabetically. For instance, "A Death in the Desert" comes in its proper place near the beginning, while "Xanthus," the name of one of St. John's attendants, mentioned in that poem, is at the close of the book. The work cannot be safely used as a book of reference; for while it gives "Xanthus" as one of St. John's attendants, it fails to give "Pamphylax" and "Valens," who also attended him. Indeed it is difficult to determine why the author inserts some names and leaves out others. Upon what principle should he mention "*Bottinius*—the public prosecutor, who in 'The Ring and the Book' presents the case against Count Guido and whose speech forms the Ninth Book of the poem," and fail to mention Hyacinthus, who defends Count Guido, and whose speech forms the Eighth Book?

The work is full of padding. Under the head "*Christopher Smart*"—*Parleyings, etc.*—is given in full Smart's "Song to David," occupying ten and a half solid pages. A simple reference to the earlier edition of Chambers' English Literature, where the entire poem is printed, would have been amply sufficient. In order to show changes made by Browning, parallel readings from the earlier and later editions of "Paracelsus" and of "Sordello" are given, which fill eighteen and a half pages. If such readings are necessary in a guide-book, why not give those from other poems—particularly the interesting and suggestive ones from the earlier and later editions of "Pauline"?

Instead of being a "Guide-book," as claimed in the title, the work fails to explain where explanation is needed, and attempts to do so when the meaning is clear. In the article on "The Ring and the Book" the author explains that *presbyter* means *priest*,—*abote* means *abbot*,—*canon* means *a member of the chapter or council of a bishop*. But he fails to tell anything about "that gold snow Jove rained on Rhodes," or what was "Thucydides' sole joke," alluded to in the speech of Bottinius. He explains the "Wormwood Star" of the Twelfth Book as follows: "The star which the superstition (*sic*) of the Middle Ages thought appeared when death approached"! If Mr. Cooke will turn to Rev. viii, 10 and 11, he will find the following: "And the third angel sounded and there fell a great star from heaven, burning as it were a lamp, and it fell upon the third part of the rivers, and upon the fountains of waters: And the name of the *star* is called *Wormwood:* and the third part of the waters became wormwood, and many men died of the waters because they were bitter." He will also find Browning's allusion, if he will take the trouble to examine, in Byron's "Ode from the French":

> Like the *Wormwood Star* foretold
> By the sainted seer of old,
> Show'ring down a fiery flood,
> Turning rivers into blood.

The truth of the matter is we are having too many "Guide-books" that mislead, and too many "Helps" that hinder, especially in the study of Browning.

LESLIE WAGGENER.

UNIVERSITY OF TEXAS.

Geometry of Position.—By ROBERT H. GRAHAM, author of *Graphic and Analytic Statics.* London and New York: Macmillan & Co., 1891, pp. xv, 192.

Mr. Graham has made an excellent text-book for colleges and schools of engineering.

The study of the geometry of position in modern times[1] is confined to the present century, beginning with Carnot's work with that title published in 1803, and his work on "Transversals" which appeared in 1806. The subject was very little handled in the decades following by English mathematicians. Hutton, however, inserted an elementary discussion of it in an edition of his *Course of Mathematics*, and brief discussions of transversals were appended to editions of Euclid. The subject has received much more attention in the University of Dublin and colleges of Ireland, as witness the text-books and lectures of Mulcahy and Townsend on "Modern Geometry," the name applied to Carnot's discussions. The greatest names connected with the development and progress of this "Higher Modern Geometry" belong to the Continent. Of these, the names of Poncelet, Steiner, Chasles, and Cremona are the most prominent. It is an interesting fact that Poncelet wrote his treatise on the "Projective Properties of Figures" while a prisoner of war in Russia, having been captured in the retreat of Napoleon from Moscow.

It is rather singular that Mr. Graham does not mention Chasles among the great mathematicians whose names are connected with the progress and development of the geometry of position. Is the inventor of anharmonic ratios, and the author of the treatises on the higher modern geometry and projective conics, overlooked on account of his believing in his old age that the notorious forgeries which claimed for Pascal the great Newtonian discoveries were genuine?

---

[1] I use this term because it may be considered a disputed point whether some of the Greek mathematicians were not acquainted with the use of transversals.

Mr. Graham, beginning with the subject of Transversals, gives a very sound, clear course on Anharmonic Pencils and Ratios in some twenty pages. He then takes up the subject of Projective Conics, to which nearly half of the book is devoted. It is a fault of the discussion in the chapters on this subject that in some cases dual solutions of the problems proposed are given, based respectively on theorems and methods in Newton's Principia and on the principles of modern projective geometry. Such detailed comparisons of methods in a number of examples belong more to the history of mathematics or of the genesis of methods than to a text-book of this grade.

The advice of the old German professor to teachers in reference to their pupils, namely, "Nicht mit ihnen prahlen sondern sie tüchtig einüben," should be equally heeded by authors of text-books.

It is proper and natural, however, to show how readily Pascal's famous theorem[2] (discovered by him at the age of sixteen) may be demonstrated by the new method. The chapters III, IV, V, and VI, beginning with the Projective Property of Reciprocal Figures, require a knowledge of mechanics on the part of the pupil. They treat of the funicular polygon (or use it, rather); of Culmann's Nullsystem (which the author claims for Maxwell), elliptic arches, stress diagrams, centers of gravity, ellipses of inertia and the elastic line by the methods of projective geometry.

These subjects are treated with clearness and precision, and numerous illustrative problems are added for solution by pupils. These last chapters remind us of the grave defect in the mathematical training in the high schools of the United States in the neglect of the study of the elements of mechanics. It goes without saying that the study of the Geometry of Position, successfully introduced into the courses of mathematics of American colleges, would greatly promote the mental pluck and power of analysis of our earnest mathematical students. Such courses would cause, moreover, more thorough study of elementary geometry, and especially of geometrical analysis, now so sadly neglected in many of the high schools, academies and colleges. The examples and problems for solution appended to each chapter of Mr. Graham's book add greatly to its usefulness. It would have been better, perhaps, to adopt the method of Potts in his edition of Euclid, and others, and add hints for the solution of these in an appendix.

---

[2] "In every simple hexagon inscribed in a conic the points of intersection of the three pairs of opposite sides lie on a straight line."

CHARLES S. VENABLE.

UNIVERSITY OF VIRGINIA.

English Composition.—By JOHN NICHOL, M. A. Balliol, Oxon, LL.D., Professor of English Language and Literature in the University of Glasgow. London and New York: Macmillan & Co., 1889, pp. 128.

Questions and Exercises on English Composition.—By J. NICHOL, M.A. Oxon, LL.D., late Professor of English Literature in the University of Glasgow, and W. S. MCCORMICK, M. A., Lecturer on English Literature in Queen Margaret College, Glasgow. London and New York: Macmillan & Co., 1890, pp. 124.

The first of these, one of the series of Literature Primers edited by the late J. R. Green, has already been before the public since 1878. Bound with it, arranged according to the same order of topics, and making with it a handy little pocket volume, now appears the *Questions and Exercises*, furnishing a quite full and varied apparatus for study and practice in the grammatical details of composition. To these latter the book confines itself, the larger forms and processes having no treatment in its pages.

A course in composition must of necessity deal with many and various details of rule, caution, example; but there are two very different methods of meeting these. The one, starting from a few large and significant principles, which it merely illustrates by such details as are pertinent, works for the utmost attainable simplicity; seeking at the same time to give the student an impulse toward writing, an interest in those larger literary objects which alone can make grammatical details interesting. Get the student once awakened to the object that his writing is to accomplish, and you have got him just so far in the attitude of a discoverer, whose quickened mind will not wait for rules and cautions, but will go out to meet them, nay, make them for himself. The other method, beginning at details, which it groups and classifies under principles, does not shun multiplicity even if it does not work for it. Careful to put up a guide-post at every crook and turn of the student's way, it is not so solicitous to keep him heartened and inspired with glimpses of his goal; and so, for all the method cares, his training in expression may be just a dead lift, a grind. To this latter method belongs quite decidedly the book before us. Not that it is dull or heavy; on the contrary both precept and example are bright, fresh, and to the point. But its principles seem chosen not so much to be a guide and support to the student's mind, a center round which his ideas of composition shall arrange themselves, as a mere occasion of classification; they give one the impression of being the heads made necessary in marshaling the contents of a well-stocked note book. As a consequence the examples, which are mostly good, are sometimes rather remote from practical needs. There is a tendency to bring together mere curiosities of expression, which are helpful indeed so far as they are strange and funny, but of little real aid toward the main purpose of becoming a writer. It is not certain that the author has really placed his mind by the side of the student's mind, to anticipate the latter's needs and objections, and to allure him step by step toward his goal. The same thing is true of the *Questions and Exercises.* They are based mainly on the mistakes and usages gleaned from standard literature, and so far, well; but would it not be more helpful to set the student correcting the mistakes that arise in his own practical life—the errors of John Smith rather than the errors of Edmund Burke? For another thing, the fact that they are a museum of extracts scrupulously ordered by topis, each sentence thus advertising its own error or usage, seems to me to take away from rather than increase their utility as a means of awakening thought and furnishing drill As a well-ordered collection of instances, the book is useful, and able; for the help which is also stimulus and inspiration. we must look further, perhaps to some book yet to be written.

AMHERST COLLEGE. JOHN F. GENUNG.

Herodotus, Book VII; with notes.—By AGNATA F. BUTLER. London and New York: Macmillan & Co., 1891, pp. xvi, 302.

Whether we concede or deny to Herodotus the title of "Father of history," there is no doubt that he is the father of literary prose, and as such entitled to the careful and enthusiastic labor of the student of literature.

True to the original signification of the Greek word *ἱστορία*, this work is not a mere record, but a "research," and Herodotus was no mere chronicler of wars and expeditions, but a keen-eyed traveler, a lover of wonders, and the prince of delightful story-tellers. Not only has Clio inspired him, but Calliope, Thalia, and Melpomene as well. His view of life is not unlike that of the contemporary dramatists—that the power of fate is irresistible, that the gods are imminent in human affairs, that their enmity is excited by the proud prosperity of men, and that "insolence, the offspring of satiety," brings ruin. Except in outward form, Herodotus' account of the Persian war is as much a tragedy as Æschylus' Persæ.

This edition takes up the seventh book, a point where the story is most intensely interesting. Xerxes, the magnificent, is one of those whom the gods delight to humble. His march has all the pomp and circumstance of a pageant. Herodotus dwells with pleasure upon the preparations, even to the curious accouterments of the barbarians with their swarthy faces and turbaned heads. Then he recounts the details of the bridging of the Hellespont and the tunneling of Mount Athos; the rendezvous at Therma, the visit of Xerxes to the beautiful vale of Tempe; and finally the topography of Thermopylæ, where the immortal battle was fought.

There is a certain trimness about the notes, a close cincture as if for swiftness, that he who reads may run. There is no superfluous matter; the translations are few and idiomatic; the student is expected to go to the proper sources for most of his lexical and grammatical information. But the editor has done good service in bringing together and classifying noteworthy constructions or meanings. Another commendable feature is the aptness of the references to contemporary writers in other fields, notably to Pindar and Sophocles.

The historical and geographical notes are clear and concise.

The treatment of particles and prepositions is good. The treatment of the genitive case is not so satisfactory. "Loose genitive of connection," though it may have high authority, is after all no explanation. Why should we not follow Jelf, and regard the genitive as the point from which we proceed, whether physically or mentally, the necessary "antecedent notion?" I commend the book, and its editor.

ANGIE CLARA CHAPIN.

WELLESLEY COLLEGE.

A Student's History of England.—By SAMUEL RAWSON GARDINER, London and New York: Longmans, Green & Co., 1890, vol. i, pp. xxxii, 378.

The first volume of Mr. Gardiner's new *Students' History of England* begins with palæolithic man, and ends with the year

1509—the year which marks the accession of Henry VIII. The book is not intended for beginners; it calls for a certain maturity of mind and seriousness of purpose in the reader. The constitution of the folk-moot, of the hundred-moot, of the shire-moot, and of the witenagemot; the constitutions of Clarendon, the Curia Regia, the system of recognitions—these are not matters that attract the reader who is in search simply of entertainment. Yet these are the matters of abiding worth, of educational value in English history. Mr. Gardiner's presentation of all these subjects is admirable. The development of the English constitution is traced step by step. The local governmental institutions of the Anglo-Saxons, such as the township, the hundred, and the shire having been described, the way in which these were depressed, modified, and developed under Norman and Plantagenet influences, is carefully traced. The prominence given to these matters, makes the book an excellent introduction to the larger constitutional histories of Stubbs, Gneist, and others.

But while the growth of the institutions of government is given by our author a foremost place in his new work, still he does not forget that national life is many-sided, and that a book which purports to be a history of a people, should be a reflection of this diversity. Religious, social, economic, and literary matters are given full recognition, and are made to contribute color, warmth, and life to the narrative.

The value of the matter contained in the volume is greatly enhanced by the attractiveness of the language in which it is presented. Mr. Gardiner's style is a model of plain, straightforward, perspicacious English. The illustrations, 173 in number, were prepared under the direction of Mr. St. John Hope, secretary to the Society of Antiquaries. The series, which begins with the flint instruments of the Stone Age, and carries us through the Roman, the Anglo-Saxon, the Norman, and the Plantagenet periods, is a very valuable and helpful commentary on the text. The book is also well supplied with genealogical tables, summaries, bibliographies of the several periods, and a full index. It is, however, without maps; but the announcement is made that the work, when complete, is to be accompanied by an atlas.

PHILIP VAN NESS MYERS.

UNIVERSITY OF CINCINNATI.

The Reader's Guide in Economic, Social, and Political Science.—Edited by R. R. Bowker and George Iles. New York: The Society for Political Education, 1891, pp. 169.

The energetic and accomplished editors of this "classified bibliography, American, English, French, and German"—why not Italian—of the political and social sciences, have undertaken and partially accomplished a most useful work; but they have not completed it. This edition, which ought to be only the first of many, is susceptible of great improvement. The scheme of classification that is followed is neither logical nor apparent. The main heads seem to be Political Economy, Public Finance, Social Science and Sociology, Political Science, International Law, and Statistics, but this fact is not made clear either in the table of contents or in the typographical arrangement. Neither are these subjects systematically arranged. "Statistics" is tacked on after "International Law," although its proper place is either as a sub-head of Social Science, or in juxtaposition to it. The arrangement of titles under each head, according to the country of their origin is wise, but ought to be made more apparent. The French and German titles are not nearly numerous enough, and if those countries are to be represented at all, they should be treated adequately. The titles which appear give evidence of having been selected at random.

The details of the bibliography are very carefully and laboriously worked out, but they do not fail to show the omissions and unevenness apparently inseparable from bibliographical work, however painstaking. Laurent's great work, *Études sur l'Histoire de l'Humanité*, is so largely institutional that it might properly appear in the list of general works on political science (pp. 93–96), and its great value emphasizes the omission. Under Statistics (pp. 123–25) there is no mention of von Mayr's new *Allgemeines Statistisches Archiv.* Under Banking (pp. 40–43) Dunbar's *Chapters on the Theory and History of Banking* is omitted, although the same author's other work, also published in 1891, is given. Under Political Economy, General Works, (pp. 1–4), Keynes' *Scope and Method of Political Economy* is not found. In some cases the dates of the birth and death of authors are given, but more often they are omitted. The death of Henry Fawcett is noted (p. 11), but not that of Bonamy Price (p. 16).

The statement (p. 13) that Adam Smith's *Wealth of Nations* is the "only book to which has been awarded the honor of a centenary commemoration" is, to say the least, incautious. The centenary of Kant's *Kritik der reinen Vernunft* was so commemorated in 1881. Somewhere the annual known as *La Vie Politique à l'Étranger*, by Lavisse, should have been inserted. After what is said of Mr. Bryce's *American Commonwealth* (p. 99), M. Carlier's book—of which the title is wrongly given—is not sufficiently emphasized by being called "a masterly review" (p. 107). Professor Burgess has said of this work that it is "the most comprehensive and exhaustive in any language upon the public law and political institutions of the United States" (*Political Science Quarterly*, vi: 164). "Church and State" is very scantily treated (pp. 116-7), and the literature dealing with the relations of the state to education is omitted entirely, only a few titles being included incidentally under other heads.

The editors have attempted almost too much in endeavoring to compress so many subjects into a single bibliography, but they can do a great deal to improve this first edition. As it is, it is very useful; and as it can be made, it will be indispensable to students and teachers of political and social science.

N. M. B.

Shakespeare's Comedy of the Merchant of Venice.—Edited, with Notes, by HOMER B. SPRAGUE, A.M., Ph.D., President of the University of North Dakota. Chicago: S. R. Winchell & Co., 1890, pp. 188.

Numerous school editions of this most delightful of Shakespeare's comedies have appeared from time to time, and one wonders at the outset why President Sprague should have set himself the task of giving us still another. In his brief and modest preface he states four reasons: namely, (1) to furnish notes that may stimulate thought rather than supersede it; (2) to give the results of the latest critical research; (3) to present the opinions of more than one authority on all disputed points of any considerable importance; (4) to include for the teacher's guidance a symposium of the best thought and practice in teaching English literature.

It will need only a most cursory examination of the text and annotations to convince any one at all familiar with other editions of this play, that the foregoing claims have been fully substantiated. Without disparaging other editions of the

Merchant of Venice, some of which are excellent, notably that of Rolfe, it must be admitted, nevertheless, that most of them are not well adapted for school use.

In President Sprague's book one hesitates which most to admire, the erudition and scholarship displayed in the wide range of his critical annotation, his unerring discernment of what the pupil most needs, or the masterly skill with which he suggests rather than asserts the true interpretation of the author, thereby keeping the pupil's intelligence ever alert to discover and seize upon the nice distinctions of thought in which Shakespeare abounds.

In this last respect, particularly, the work of President Sprague is unique and difficult to excel. Instead of affirming in the *ipse dixit* manner, common to so many editors, that the text means thus and so, President Sprague is satisfied merely to suggest an interpretation where help is needed; but consistently with his avowed claim of "stimulating rather than of superseding thought," he puts his suggestion into the interrogative form and affords the pupil the opportunity to decide for himself.

Like so many editors who make a fetich of the old quartos and folios, President Sprague prefers to use *alablaster* instead of alabaster (l. 84), *moe* instead of more (l. 108), etc., although Shakespeare's own spelling of the same words is variable and elsewhere in conformity with present usage.

The annotations are placed at the bottom of the page, to which some teachers may demur, and comprise fully one-half of the 123 pages devoted to the text and notes. Not the least valuable features of the book are the critical comments on the play by distinguished Shakespearean scholars, suggestions and plans for study, specimens of examination papers, topics for essays, and so on.

The introduction, likewise, is most admirable. Taken as a whole, President Sprague's book is a credit to American scholarship. It exhibits, besides, a pedagogical insight that is as rare as it is remarkable. It cannot fail to give a great impetus to the study of Shakespeare in the schools.

A. B. P.

Handcraft: Being an English Exposition of Slöjd as cultivated in Sweden.—By JOHN D. SUTCLIFFE, of the Manchester Recreative Evening Classes. New York: Charles E. Merrill & Co., 1890, pp. 79.

The publication of this treatise is one more indication of the widely felt need of introducing manual methods into the lower grade schools, and it is evident that the author is entirely satisfied that the adoption of the Swedish method will furnish a complete solution of the problem. There is no question that such a detailed receipt ready to the hand, and developed by actual experiment, would be a most desirable acquisition, if it were not that there are weighty reasons which prevent its meeting our own special conditions. In the first place, manual training exercises are helpful and efficient only in the degree in which they advance educational ends, and the particular operations selected must be those which best fulfill the requirements of economy in tools and material, neatness in operation, adaptability to class methods, and fitness to the varying capacities of the pupils. Froebel's gifts and occupations of the kindergarten are a happy illustration of the successful application of this principle to one set of conditions. The exercises of the Swedish Sloyd represent an attempt to meet another set of conditions by making use of an additional principle, viz., that by creating in each exercise some useful article, an added interest and moral value is imparted to the work. It is this principle, consequently, which has determined the exact form of each exercise and produced a series of pieces, useful perhaps in Sweden, but of little direct service among us; and the whole value of the utilitarian idea is lost when it is sought to apply them to other conditions. There is very little zest for an American boy in laboriously producing a key label or book carrier that he knows would never be used for that purpose. In order to obtain in every case a piece of useful application, the strictly disciplinary value of the exercise is subordinated to its constructive necessities. These, in many cases, involve the repetition of a few very simple operations, as in the long flower-pot stand, and the foot-stool, and consequently consume considerable labor and material, without a proportionate educational return.

The list of tools given for carrying out the system is somewhat formidable, including as it does, practically, all of the ordinary tools of the carpenter; and as some of the most expensive are used but a few times during the course, the practice obtained can hardly be sufficient to impart much benefit. But with our well-developed methods in high school work, our direct interest in Sloyd is limited to the lower grades, and here the employment of a large number of expensive tools is quite out of the question. The only methods worth considering for these stages are those which need but two or three tools of the simplest character, and which can be prosecuted for the most part in the regular class-room.

The general use of sandpaper to secure the final finish of the work is another point which must be strongly objected to. By its employment a purely mechanical operation is substituted for the consciously guided hand movement, and a superficial smoothness is obtained at a sacrifice of exactness. The use of models instead of working drawings is also a weakness of the system. Nothing develops the power of clear imagination and exact thinking like the dependence upon a drawing in constructive work, and it should be made use of wherever practicable.

In fact, all that the system herein described has of benefit for us lies in its suggestiveness. Neither its exact exercises nor its methods can be applied to our conditions with advantage, but, in the simplicity of its first exercises and in the freehand character of some of the knife pieces, there is much that is helpful. In these pieces of free outlines and delicate curves much good training may be given in the principles of design and in the appreciation of graceful form and good proportion.

PRATT INSTITUTE,
BROOKLYN, N. Y.

CHARLES R. RICHARDS.

Notes on Recent Pedagogical Literature.

TABELLEN ZUR GESCHICHTE DER PÄDAGOGIK. Ein Repetitionsbuch für Seminaristen und Lehrer.—Herausgegeben von W. Pätzold. Jena: Fr. Mauke's Verlag (A. Schenck), 1891, S. 30.

This is a compact compilation of names, facts, and dates, for use in preparing for examinations. The author has omitted many educationists of the first order of importance, apparently because they were not Germans. Conversely, many Germans of merely local reputation are inserted. The book lacks proportion.

ANNUAIRE DE L'ENSEIGNEMENT PRIMAIRE. Publié sous la Direction de M. Jost. Paris: A. Colin et Cie., 1891, pp. 644.

M. Jost's valuable annual is in its seventh year. It is a veritable mine of information concerning elementary education in France, the *personnel* of the administrative and teaching bodies, the newest laws and ministerial decrees. The annexed essays are even more interesting than usual, and of particular merit are that by M. Gréard on "Le rôle des femmes dans l'Enseignement primaire," and that on "Le Concentration dans le plan d'Études," the latter being a study in the Herbartian pedagogy. The many American readers of M. Gabriel Compayré will be glad to see that he has become Rector of the Academy of Poitiers (p. 132).

BULLETIN DE L'ASSOCIATION NATIONALE POUR LA RÉFORME DE L'ENSEIGNEMENT SECONDAIRE, Nos. 1 et 2. Paris: Au Siège de l'Association, 1890, pp. 23, 31.

The association which issues this *Bulletin* is organized to bring about such reforms in French secondary education as will adjust it to the needs of contemporary society. The association forcibly attacks the classical course in the Lycées as inefficient. The alternative course, in which the modern languages are substituted for Greek and Latin, is preferable, but not satisfactory. A new organization is demanded for the secondary schools in order that a broad and modern foundation may be laid before any specialization is undertaken. This is to include instruction in morals and "civics," in the French language and literature, in English and German, in history, geography, and elementary science. Specialization, whether toward the classics or natural science, should not be permitted until such a general course has been completed. The proposition, then, involves an *enseignement secondaire* uniform for all, and an *enseignement secondaire supérieur*, diversified to meet all rational needs. The similarity of this plan to some of the propositions for an *Einheitsschule* in Germany (EDUCATIONAL REVIEW, I: 378), is apparent. The president of the association is M. Georges Berger, the famous director-general of the exposition of 1889.

BULLETIN UNIVERSITAIRE DE L'ENSEIGNEMENT SECONDAIRE, Nos. 1, 2, 3, et 4. Sécretaire de le Reduction, CH. SEIGNOBOS. Paris: Armand Colin et Cie., 1891, pp. 144.

This *Bulletin*, like the one just mentioned, is an interesting sign of the times. It marks the recognition of a common interest on the part of the university professors and the secondary teachers. The Sorbonne has organized a very simple and yet effective course of instruction for those students who look forward to becoming secondary teachers. The central figure in the course is M. Henri Marion, professor of the science of education. He holds a series of practical conferences with his students, who then spend two weeks in the Lycées of Paris. This experience concluded, they are divided into groups, and each group receives detailed instruction from the professor in charge of the subject that the members of the group are preparing themselves to teach. While only the beginning of a more comprehensive plan, this system is practical and efficient. This *Bulletin Universitaire*, which is published as a supplement to the well-known *Révue Internationale de l'Enseignement*, has been established for the purpose of publishing to a wider public the various lectures and conferences that are given as part of the above plan. It should have many careful readers in America.

DAS STAATSSEMINAR FÜR PÄDAGOGIK. Von Dr. E. VON SALLWÜRK. Gotha: Emil Behrend, 1890, S. 40.

An interesting and forcible argument for institutions, separate from the universities, to give to intending teachers in secondary schools some instruction in the principles and practice of their art. The author insists that the universities are not organized so as to do all that is required; a *Staatsseminar für Pädagogik* is necessary in addition.

PRUSSIAN SCHOOLS THROUGH AMERICAN EYES; a report to the New York State Department of Public Instruction. By JAMES RUSSELL PARSONS, Jr., late U. S. Consul at Aix-la-Chapelle. Syracuse, N. Y.: C. W. Bardeen, 1891, pp. vii, 82.

Mr. Parsons is to be congratulated on having compiled this painstaking statement, and Mr. Bardeen on having rescued it from the undeserved obscurity of an official publication. The teacher who wishes to know exactly what the much praised Prussian elementary schools do, and on what their excellence depends, will find it set forth here compactly and clearly. The New York reader will have the additional benefit of frequent comparisons between Prussian educational details and those in his own State. All those wise persons who are sure that America can work out its own pedagogic salvation without learning from the experience of any other nation, especially Germany, should not read this book. It might disturb their equanimity.

N. M. B.

VIII.

EDUCATION IN FOREIGN PERIODICALS.

Some Characteristics of a Sound Mind.

'MRS. SOPHIE BRYANT, D. SC., IN "THE EDUCATIONAL TIMES."

"When it is desired to ascertain the size and shape of a room the problem is easily solved by the application of a foot rule, and the use of certain well-known geometrical and arithmetical principles. With this example in mind it is possible to conceive of an enterprising pedagogue who might seek to gauge the kind and magnitude of the human minds committed to his care in terms of the various faculties which, to use the popular phrase, they possess. The estimates of such a one would be stated somewhat as follows: Perception, 60°; Conception, 50°; Imagination, 10°; Reasoning, 5°, and so on. For the estimate of moral qualities he might, in his imaginings, use a similar process, and thus, having applied his tape measure all round the intellectual and moral man, he would assign to each subject of measurement his proper place in a list of candidates competing for places.

"Now I am not going to assert that this notion of applying the tape measure to the qualities of the inner man is so wholly fallacious as to be quite useless for the practical purpose of selecting candidates for particular offices in certain cases. That physical qualities can be so measured has been shown by several, Mr. Francis Galton being probably the best known experimenter; and in a sense, faculty, as well as knowledge, is measured in all examinations. Indeed, I have no doubt we could measure in ways similar to those employed in physical measurements, though less accurately, some of a man's intellectual powers. The difficulty, however, even in a partial way, is very great, so great that only those who have tried can easily appreciate how great it is, and the notion that the whole character of the man or child could be apprehended by measurements ever so distinctly approximate, as one apprehends the size and magnitude of a physical object, is one which can only be characterized as an inconsiderate dream.

"One reason why we cannot measure the more fundamental features of character is that they are all mutually involved, and another is that we cannot possibly select a unit of measurement in the ordinary physical sense. Now, reflection on this source of difficulty suggests the thought that, after all, though we cannot measure A's faculties as we measure his height and weight, we could estimate A's humanity as a whole by comparing his manifested character as a whole with the typical character proper to him by his divergence from the type. This normally developed type is, in fact, the only unit possible to us. It is not a unit proper, but a maximum or limit. Average human nature will not answer instead, partly because we cannot determine, except when statistics are applicable, what average human nature is, and, moreover, the average changes from age to age. On the other hand, we can determine the characteristics of the type, first, because we have a knowledge, more or less, of the type as that which at our very best we tend to become; and, secondly, because, looking outside ourselves, we know the type by the fruits it brings forth, moral use and intellectual truth.

"In the intellectual sphere, doubt and difficulty as to the nature of the type are least when we look to the objective test of a good intellect, namely, its habit of thinking and finding the truth. When we do not digress into metaphysical subtleties, we know quite well what we can mean by truth. It is therefore not so hopeless—I will not say it is not hard—to determine generally the character of the truth-producing mind, and the truth-producing mind is the mind of sound intellect. Ability to find truth is the general mark of a sound intellect, sound in sense, sound in judgment, and sound in reasoning. Such an intellect is subject to no illusions of sense, does not see things where they are not and as they are not, does not hear statements that were never made nor report events as they never occurred, but hears, sees, and therefore reports accurately in accordance, that is to say, with the actual facts of the case. The sound mind, for instance, sees a shadow on the wall or a moonbeam through the window, when another sees a hooded ghost. Such a mind, moreover, rightly interprets the impressions received, bringing to bear on them the full light of its previous experience: it judges soundly, it sees things whole; it does not muddle new impressions and old together, but understands in orderly, consistent sequence those relations of the new to the old which make the new intelligible. It appreciates the fact that a noise in the street is not the sound of a gunpowder explosion, and that the baby's cry upstairs is not that of an infant in dire distress. Just as in sound perception we say that is not so and so, meaning that the fact is different from the idea as which we were about to perceive it, so in sound judgment we say precisely the same thing, meaning to condemn the inference which too hastily springs into being, because we keep our heads and note that the facts are not consistent with our theory. The sound intellect observes accurately, judges soundly; it also reasons correctly, and the correctness of its reasoning is a simple consequence of the soundness of its judgments. It rejects pairs of inconsistent judgments unrelentingly, just as it condemns the moonlight ghosts and the slovenly single judgments—the false interpretations of fact by thought, through lack of steadiness in perceiving that facts and ideas are inconsistent with each other. Reasoning differs from judgment only in this, that in reasoning we compare ideas only with ideas for the time, and reason correctly if we leave no inconsistencies behind. A sound reasoner may not indeed see his way to escape inconsistencies which press on him from the facts of the case, but the mark of his soundness is his sense of the inconsistency, and his ever-present desire to get rid of it.

"A mind, therefore, is sound—sound in perception, sound in judgment, sound in reasoning—when, and when only, it is active in the rejection of inconsistencies between thought and things, and wide-awake, therefore, also, to receive every scrap of information that comes to it, shedding new light of consistency or inconsistency on its contents. It must be, at one and the same time, an open, docile, receptive mind and a strictly accurate, logical mind, insistent upon seeing truth for itself, solid and transparent through and through."

The School of the Future.

C. M. IN THE "ZEITUNG FÜR DAS HÖHERE UNTERRICHTSWESEN DEUTSCHLANDS."

"The school of the future will be free from top to bottom. Neither in form nor in fact will it be the privilege or possession of the rich: for the state must rest upon the truth that virtue and usefulness, wherever found, are to be sought out and developed. Free instruction alone will not suffice to accomplish this. If the poverty of parents is not to be permitted to narrow, as it now does so often, the future opportunities of a child, the state must stand ready to care for him up to that time when he is able to pass an intelligent judgment upon his own prospects and provide for his own support. Up to such a time, perhaps then to the seventeenth year of life, the state must make proper provision for the sustenance and care of every child whose parents are too poor to provide either for his material or intellectual care. The question as to the parents' poverty could readily be determined by reference to the assessments made for the purposes of taxation.

" When this comes to pass there will be a real aristocracy of the educated. One can readily see that then the German people will exercise a material and intellectual influence in the world, to which that gained mainly by force of arms will be scarcely comparable."

The School for Oriental Languages at Berlin.

M. J. DARMESTETER IN THE "RÉVUE POLITIQUE ET LITTÉRAIRE."

"The organizer and director of the school is Dr. Edward Sachau, ordinary professor in the University and member of the Academy of Sciences of Berlin. Although still young, having been born in 1845, Dr. Sachau is the most comprehensive, and perhaps the best known, of German Orientalists. He studied Semitic and Aryan languages at Kiel, Leipsic, and Berlin, and then passed two years in the libraries of London and Oxford. In 1869 he accepted a chair at the University of Vienna, and quitted it in 1876 to become a professor at Berlin. Having been charged by his government with studying, principally in France and England, the methods of practical instruction in the Oriental languages, he found in the school of Paris that of which he was in search, and the Berlin institution reproduces faithfully the spirit and the letter of the Convention's decree, made in the year III on the 10 Germinàl.

"The object of the school is practical instruction in the Oriental languages and in the facts (*Realien*) relative to the corresponding geographical domain—namely, the religious customs and usages, geography, statistics, modern history, etc. The programme comprises: (1) instruction in the grammar and vocabulary of daily life and commerce; (2) language exercises—both oral and written; (3) practice in the most usual forms of composition, official and private; (4) such other knowledge as is necessary to gain an understanding of the countries and the people. The theoretical instruction is given by German professors, while the practical exercises are directed by an Oriental *lector*.

"The school is principally designed to prepare interpreters for the diplomatic service, but it is open to students of all kinds. It was opened in October, 1887, and the languages in which instruction was given during the first year were Chinese, Japanese, Hindustani, Arabic, Persian, Turkish, and Souahéli, each taught by a European professor. For Chinese there were two lectors, one for Northern Chinese, that of Pekin, and one for Southern Chinese, that of Canton: for there is less in common between these two languages than between Italian and French. There were also two lectors for Arabic; one for the Arabic of Egypt, and one for the Arabic of Syria. Hindustani and Persian were represented by Europeans only, and Turkish was taught by an Armenian. The school is now in its fourth year and has about one hundred students. The largest number are studying Arabic, Chinese, Japanese, and Turkish. About one-half of the students are preparing for the consular service, and one-half for commerce with the Oriental nations. The courses have been extended to include Tamoul, Armenian, Roumanian, Russian, and modern Greek."

EDUCATIONAL REVIEW

JULY, 1891.

I.

RELIGIOUS INSTRUCTION IN STATE SCHOOLS.

The theory of development, which is now widely received and applied to all things, from star dust to the latest fashion, is at once a sign and a cause of the almost unlimited confidence which we put in the remedial and transforming power of education. We no longer think of God as standing aloof from nature and the course of history. He it is who works in the play of atoms and in the throbbings of the human heart, and as we perceive his action in the evolution both of matter and of mind, we know and feel that, when with conscious purpose we strive to call forth and make living the latent powers of man's being, we are working with him in the direction in which he impels the universe. Education, therefore, we look upon as necessary, not merely because it is indispensable to any high and human sort of life, but also because God has made development the law both of conscious and unconscious nature. He is in act all that the finite may become, and the effort to grow in strength, knowledge, and virtue, springs from a divine impulse.

Although we know that the earth is not the center of the universe, that it is but a minor satellite, a globule lost in space, our deepest thought still finds that the end of nature is the production of rational beings, of man; for the final reason for which all things exist is that the infinite good may be communicated, and since the highest good is truth and holiness, it can be communicated only to beings who think and love. Hence all things are man's and he exists that he may make himself like God; in other words, that he may educate himself; for the end of education is to fit him for completeness of life, to train all his faculties, to call all his endowments into play, to make him symmetrical and whole in body and soul. This, of course, is the ideal, and consequently the unattainable; but in the light of ideals alone do we see rightly and judge truly; and to take a lower view of the aim and end of education is to take a partial view. To hold that God is and that man truly lives only in so far as he is made partaker of the divine life, is, by implication, to hold that his education should be primarily and essentially religious. Our opinions and beliefs, however, are never the result of purely rational processes, and hence a mere syllogism has small persuasive force or even no influence at all upon our way of looking at things or the motives which determine action.

As it is useless to argue against the nature of things, so we generally plead in vain when our world-view is other than that of those whom we seek to convince; for those who observe from different points either do not see the same objects or do not see them in the same light. Life is complex, and the springs of thought and action are controlled in mysterious ways by forces and impulses which we neither clearly understand nor accurately measure. What is called the Spirit of the Age, the Spirit which, as the Poet says, sits at the roaring loom of time and weaves for God the garment whereby He is made visible to us, exercises a potent influence upon all our thinking and doing. We live in an era of progress, and progress means differentiation of structure and specialization of function. The more perfect the organism, the more are its separate functions assigned to separate parts. As social aggregates develop, a similar differentiation takes place. Offices which were in the hands of one are distributed among several. Agencies are evolved by which processes of production, distribution and exchange are carried on. Trades and professions are called into existence. As enlightenment and skill increase, men become more difficult to please. They demand the best work, and the best work can be done, as a rule, only by specialists. Specialization thus becomes a characteristic of civilization. The patriarch is both king and priest. In Greece and Rome, religion is a function of the State. In the Middle Age, the Church and the State coalesce and form such an intimate union that the special domain of either is invaded by both. But differentiation finally takes place, and we all learn to distinguish between the things of Cæsar and the things of God. This separation has far-reaching results. In asserting its independence, the State was driven to use argument as well as force. Thus learning, which in the confusion that succeeded the incursions of the Barbarians, was cultivated almost exclusively by ecclesiastics, grew to be of interest and importance to laymen. They began to study, and the subjects which most engaged their thoughts were not religious, in the accepted sense of the word. The Protestant rebellion is but a phase of this revolution. It began with the introduction of the literature of Greece into Western Europe. The spirit of inquiry and mental curiosity was thereby awakened in wider circles; enthusiasm for the truth and beauty to which Greek genius has given the most perfect expression, was aroused; and interest in intellectual and artistic culture was called forth. New ideals were upheld to fresh and wondering minds. The contagion spread and the thirst for knowledge was carried to ever-widening spheres. It thus came to pass that the cleric and the scholar ceased to be identical. The boundaries of knowledge were enlarged when the inductive method was applied to the study of nature, and it soon became impossible for one man to pretend to a mastery of all science. And so the principle of the division of labor was introduced into things of the intellect. Of old, the prophet or the philosopher was supposed to possess all wisdom, but now it had become plain that proficiency could be hoped for only by life-long devotion to some special branch of knowledge. This led to other developments. The business of teaching, which had been almost exclusively in the hands of ecclesiastics, was now necessarily taken up by laymen also. As feudalism fell to decay, and the assertion of popular rights began to point to the advent of democracy, the movement in opposition to privilege logically led to the claim that learning should no longer be held to be the appanage of special classes, but that the gates of the temple of knowledge should be thrown open to the whole people. To make education universal the most ready and the simplest means was to levy a school tax, and as this could be done only by the State, the State established systems of education and assumed the office of teacher. The result of all this has been that the school, which throughout Christendom is the creation of the church, has in most countries very largely passed into the control of the civil government.

This transference of control need not, however, involve the exclusion of religious influence and instruction, though once the State has gained the ascendency, the natural tendency is to take a partial and secular view of the whole question of education and to limit the functions of the school to the training of the mental faculties. And, as a matter of fact, this tendency is found in men of widely differing, and even conflicting opinions and convictions concerning religion itself. It is most pronounced, however, in the educational theories and systems of positivists and agnostics. As they hold that there is no God, or that we cannot know that there is a God, they necessarily conclude that it is absurd to attempt to teach children anything about God. This view is forcibly expressed by Issaurat, a French writer on education, in a recently published volume, which he calls, "The Evolution and History of Pedagogy."

"All religion," he affirms, in the concluding chapter of his book, "impedes, thwarts, misdirects, and troubles the natural education of man, the normal and harmonious development of his physical, moral, and intellectual faculties ; and since educational reform is not possible without reformation in the government, it is the duty of the State, not merely to separate itself from the church, but to suppress the church and to found the science of education upon biological philosophy, upon transformism—let us say the word, upon materialism." This view is manifestly the inevitable result of Issaurat's general system of thought and belief. In his opinion, matter alone really exists, and what is called spirit is but a phase of its evolution. The world of spirit, therefore, is illusory, and to bring up the young to believe that it is the infinite, essential reality, is to teach them what is false, and to give a wrong direction to the whole course of life. For practical purposes, this is the view not only of materialists and positivists, but of agnostics as well, who, though they do not deny the existence of spirit, assert that only the phenomenal can be known, or become the subject matter of teaching. They all agree in holding that the theological world-view was the primitive one, which, yielding to the metaphysical, has been finally superseded by the scientific, the sole basis of a rational philosophy. The ideas of God, substance, cause, and end, are metaphysical ideas, which, if we wish to understand nature, must be ignored; for the study of nature is the study simply of facts and their relations with one another. There is, so they think, no such thing as substance, any more than there is such a thing as a principle of gravity, heat, light, electricity, or chemical affinity. The vital principle too, which has played so great a part in physiological inquiries, must be given up; and therefore, while nearly all the philosophers, from Kant to our own day, have made psychology the foundation of the science of education, there is at present a marked tendency to have it rest solely on biology. Whether and to what extent these theories are true or false is beyond the purpose of this argument. True or false, they fairly describe the views of a large number of thinkers in our day, and enable us to form a conception of their philosophy of education. "Why trouble ourselves," asks Professor Huxley, "about matters of which, however important they may be, we do know nothing and can know nothing? With a view to our duty in this life, it is necessary to be possessed of only two beliefs: The first, that the order of nature is ascertainable by our faculties to an extent that is practically unlimited; the second, that our volition counts for something as a condition of the course of events." Our volition counts as a condition, but it is after all only a part of the course of events, and, consequently, the only belief it is necessary to hold is that the course of events is ascertainable by our faculties to a practically unlimited extent. Such is the brief creed of materialists and agnostics. The order of nature is the only known god, and man's sole end and duty is to make himself acquainted with it, that through obedience he may attain the highest perfection and happiness of which he is capable. This is the one true religion, and an enlightened people should forbid that any other be taught in their schools. Here we have an intelligible and well-defined position, and the one which, from the point of view of such men as Issaurat and Huxley, is alone tenable.

Every one now, who thinks at all, has some theory of the world, and hence the shades of unbelief as of belief are many: and since views of education are part of a more general system of philosophy, it is inevitable that those who disagree upon the fundamental questions of thought, disagree also in their notions as to what is the school's proper office.

Materialists, pantheists, positivists, secularists, and pessimists unite in denying that there is a God above and distinct from nature, while agnostics and cosmists affirm that such a being, if he exist, must necessarily lie outside the domain of knowledge. Positive religious doctrines, therefore, are superstition. As these views are reflected in a more or less vague way in the writings of the multitude of those who make the current literature, public opinion becomes averse to religious dogmas. A large number of cultivated minds turn from all definite systems, whether of thought or belief. Everything may be tolerated, if only the spirit of dogmatism is away. They recognize how great a thing religion is, how profoundly it touches life, how powerfully it shapes conduct. Without it, civilization is hard and mechanical, art is formal and feeble, and man himself but a shrewd animal. But, from their points of view, doctrines about God and Christ and the church have nothing to do with religion. To think of God as substance is to convert him into nature, to think of him as a person is to limit him. The only absolute is the moral order of the world. The religion of Christ is not a theory or a system of thought; it is a view of life, and its essence is found in belief in the reality of moral ideas. The supernatual may fall away—even the notion of a Providence which rules the world in the interest of the good may be given up—and we still have the method and the secret of Jesus, all that is of value in his life and teaching. All theology is an illusion, all creeds are a mistake. Religion rests upon the moral power, which is not a conclusion drawn from facts, but the fact itself—the primal and essential fact in human life. Religion is simply morality suffused by the glow and warmth of a devout and reverent temper, and to teach doctrines about God and the church will not make men religious.

It is obvious to object that morality supposes belief in a Personal God and in the soul of man, as law implies a lawgiver. This objection is meaningless not only for the thinkers whom I have mentioned, but for others who find little interest in the literary and religious ideas of such men as Matthew Arnold. Morality, they claim, is independent, not only of metaphysics, but of religion as well. It is a science, as yet, indeed, imperfectly developed, but a science nevertheless, just as chemistry or physiology is a science. Human acts are controlled, not by a higher will or man's freedom of choice, but by physical laws. The peculiarity of this view does not lie in the contention that ethics is a science, but in the claim that it is a science altogether independent of metaphysical and religious dogmas. All forces, it is asserted, physical, mental, and moral, are identical; and morality, like bodily vigor, is a product of organism. It is, in fact, but an elaboration of the two radical instincts of nutrition and propagation, from which springs the twofold movement of conscious life, the egoistic and the altruistic. This theory is accepted alike in the German school of materialism, in the French school of positivism, and in the English school of utilitarianism. What the influence of modern empiricism upon American opinion may be, it is difficult to determine. Americans certainly are a practical people, but they are not devoid of interest in speculative views. More than any other people, possibly, they have faith in the marvelous things which science is destined to accomplish, and they willingly listen to men of science, even when they quit the regions of fact for those of opinion. Thus the various theories, to which the progress of natural knowledge has given rise, are received by them, if not with implicit trust, with a kind of feeling, at least, that they may be true.

There is even a disposition to treat doubts of the truth of Christianity as a mark of intellectual vigor, and sometimes as a sign of religious sincerity. Preoccupied with material interests, but yet finding time to read the thoughts of many minds and to hear the discussion of antagonistic opinions and systems, they find it difficult to trust with entire confidence to what they know or believe. It all seems to be relative, and another generation may see everything in a different light. Problems take the place of principles, religious convictions are feeble, the grasp of Christian truth is relaxed, and the result is a certain moral hesitancy and infirmity.

They are not hostile to the churches, but they are more or less indifferent to their doctrines. As each sect has its peculiar creed, the dogmatic position of the church is thought to be of little moment. The important thing is to promote intelligence and virtue. The distinctively sectarian view they look upon as narrow and false, and the good which ecclesiastical organizations do is done in spite of their characteristic doctrines. The note of sectarianism is to them what the note of provincialism is to a man of culture, or lack of breeding to a gentleman. The moral fervor, which sectarians more than others feel, is, they freely grant, a power for good. It has a wholesome influence upon character, and is a support of the virtues which make free institutions possible, and which alone can make them permanent. But it has no necessary connection with theological doctrines, since it is found in earnest believers, whatever their creed. It is the child of enthusiastic faith, and is nourished and kept living by worship, not by dogmatic asseverations. As the power of the churches does not lie in their creeds, to make these creeds a school lesson cannot be desirable, especially when we reflect that the method of religion and the method of science are at variance.

Such, I imagine, are the views of large numbers of Americans, who are not members of any church, but whose influence is strongly felt in political and commercial as well as in social and professional life. And numbers of zealous Protestants are in substantial agreement with them, since they hold that faith is an emotional rather than an intellectual state of mind, and that religion is not so much a way of thinking as a way of feeling and acting. They assume, of course, as the prerequisites of religious belief, the dogmas of the existence of a personal God and of an immortal human soul, but, for the rest, they lay stress upon conduct and piety, not upon orthodox faith. A church must have a creed, as a party must have a platform, but unhesitating confidence in the truth of the doctrines which it thus formulates is not indispensable. American Protestantism tends to ignore creeds. This is due, in a measure, to the growing desire to form a union among the several churches, but it is none the less a sign of waning belief in dogmatic religion. Hence the increasing emphasis which preaching lays upon the moral, æsthetic and emotional aspects of the religious life. Hence, too, the assumption that the soul of the church may live, though the body be dead.

But, apart from all theories and systems of belief and thought, public opinion in America sets strongly against the denominational school.

The question of education is considered from a practical rather than from a theoretical point of view, and public sentiment on the subject may be embodied in the following words: The civilized world now recognizes the necessity of popular education. In a government of the people, such as this is, intelligence should be universal. In such a government, to be ignorant is not merely to be weak, it is also to be dangerous to the common welfare; for the ignorant are not only the victims of circumstances, they are the instruments which unscrupulous and designing men make use of, to taint the source of political authority and to thwart the will of the people. To protect itself the State is forced to establish schools and to see that all acquire at least the rudiments of letters. This is so plain a case that argument becomes ridiculous. They who doubt the good of knowledge are not to be reasoned with, and in America not to see that it is necessary, is to know nothing of our political, commercial, and social life. But the American State can give only a secular education, for it is separate from the church, and its citizens profess such various and even conflicting beliefs, that in establishing a school system, it is compelled to eliminate the question of religion. Church and State are separate institutions, and their functions are different and distinct. The church seeks to turn men from sin, that they may become pleasing to God and save their souls; the State takes no cognizance of sin, but strives to prevent crime and to secure to all its citizens the enjoyment of life, liberty, and property. Americans are a Christian people. Religious zeal impelled their ancestors to the New World, and when schools were first established here, they were established by the churches, and religious instruction formed an important part of the education they gave. This was natural, and it was desirable even, in primitive times, when each colony had its own creed and worship, when society was simple and the State as yet imperfectly organized. Here, as in the Old World, the school was the daughter of the church, and she has doubtless rendered invaluable service to civilization, by fostering a love for knowledge among barbarous races and in struggling communities. But the task of maintaining a school system such as the requirements of a great and progressive nation demands, is beyond her strength. This is so, at least, when the church is split into jealous and warring sects.

To introduce the spirit of sectarianism into the class-room would destroy the harmony and good will among citizens, which it is one of the aims of the common school to cherish.

There is, besides, no reason why this should be done, since the family and the church give all the religious instruction which children are capable of receiving.

This, it seems to me, is a fair presentation of the views and ideas which go to the making of current American opinion on the question of religious instruction in State schools; and current opinion, when the subject matter is not susceptible of physical demonstration, cannot be turned suddenly in an opposite direction. When men have grown accustomed to look at things in a certain way, they have acquired a mental habit, which no mere argument, however cogent or eloquent, is able to overcome. To what extent this view of the school question prevails is readily perceived by whoever recalls to mind that not one of the States of the Union has attempted to introduce the denominational system of education, while all the political parties have bound themselves to uphold the present purely secular system. So thoroughly secular, indeed, is our whole political organization that it is found impossible to insert in the Constitution the expression of belief in God. The opinion that the prosperity of the nation depends upon the intelligence and activity of the people, and to no appreciable extent upon the influence of ecclesiastical organizations, has so far prevailed, that the general feeling has come to be that the State has no direct interest in the church, which is the concern merely of individuals. The religious denominations themselves have helped to inspire this sentiment by their jealousies and rivalries. The smaller sects feel that State aid for denominational schools would accrue to the benefit chiefly of the larger; and all the Protestant bodies are willing to forego favors which they could not receive without permitting the Catholic Church to participate also in the bounty of the government.

The Catholic view of the school question is as clearly defined as it is well known. It rests upon the general ground that man is created for a supernatural end and that the church is the divinely appointed agency to help him attain his supreme destiny. If education is a training for completeness of life, its primary element is the religious, for complete life is life in God. Hence we may not assume an attitude toward the child, whether in the home, in the church, or in the school, which might imply that life apart from God could be anything else than broken and fragmentary. A complete man is not one whose mind only is active and enlightened ; but he is a complete man who is alive in all his faculties. The truly human is found not in knowledge alone, but also in faith, in hope, in love, in pure-mindedness, in reverence, in the sense of beauty, in devoutness, in the thrill of awe, which Goethe says is the highest thing in man. If the teacher is forbidden to touch upon religion, the source of these noble virtues and ideal moods is sealed. His work and influence become mechanical, and he will form but commonplace and vulgar men. And if an educational system is established on this narrow and material basis, the result will be deterioration of the national type and the loss of the finer qualities which make men many-sided and interesting, which are the safe-guards of personal purity and of unselfish conduct.

Religion is the vital element in character, and to treat it as though it were but an incidental phase of man's life is to blunder in a matter of the highest and most serious import. Man is born to act, and thought is valuable mainly as a guide to action. Now, the chief inspiration to action, and above all to right action, is found in faith, hope, and love, the virtues of religion, and not in knowledge, the virtue of the intellect. Knowledge, indeed, is effectual only when it is loved, believed in, and held to be a ground for hope. Man does not live on bread alone, and if he is brought up to look to material things, as to the chief good, his higher faculties will be stunted. If to do rightly rather than to think keenly is man's chief business here on earth, then the virtues of religion are more important than those of the intellect ; for to think is to be unresolved, whereas to believe is to be impelled in the direction of one's faith. In epochs of doubt things fall to decay ; in epochs of faith the powers which make for full and vigorous life, hold sway. The education which forms character is indispensable, that which trains the mind is desirable. The essential element in human life is conduct, and conduct springs from what we believe, cling to, love, and yearn for, vastly more than from what we know. The decadence and ruin of individuals and of societies come from lack of virtue, not from lack of knowledge. "The hard and valuable part of education," says Locke, "is virtue; this is the solid and substantial good, which the teacher should never cease to inculcate till the young man places his strength, his glory, and his pleasure in it." We may, of course, distinguish between morality and religion, between ethics and theology. As a matter of fact, however, moral laws have everywhere reposed upon the basis of religion and their sanction has been sought in the principles of faith. As an immoral religion is false, so, if there is no God, a moral law is meaningless.

Theorists may be able to construct a system of ethics upon a foundation of materialism, but their mechanical and utilitarian doctrines have not the power to exalt the imagination or to confirm the will. Their educational value is feeble. Here in America we have already passed the stage of social development in which we might hold out to the young, as an ideal, the hope of becoming President of the Republic, or the possessor of millions of money. We know what sorry men presidents and millionaires may be. We cannot look upon our country, simply as a wide race-course with well-filled purses hanging at the goal for the prize-winners. We clearly perceive that a man's possessions are not himself, and that he is or ought to be more than anything which can belong to him. Ideals of excellence, therefore, must be substituted for those of success. Opinion governs the world, but ideals draw souls and stimulate to noble action. The more we transform with the aid of machinery the world of matter, the more necessary does it become that we make plain to all that man's true home is the world of thought and love, of hope and aspiration. The ideals of utilitarianism and secularism are unsatisfactory. They make no appeal to the infinite in man, to that in him which makes pursuit better than possession, and which, could he believe there is no absolute truth, love, and beauty, would lead him to despair. To-day, as of old, the soul is born of God and for God, and finds no peace unless it rest in him. Theology, assuredly, is not religion, but religion implies theology, and a church without a creed is a body without articulation. The virtues of religion are indispensable. Without them, it is not well either with individuals or with nations; but these virtues cannot be inculcated by those who, standing aloof from ecclesiastical organizations, are thereby cut off from the thought and work of all who in every age have most loved God, and whose faith in the soul has been most living. Religious men have wrought for God in the church, as patriots have wrought for liberty and justice in the nation, and to exclude the representatives of the churches from the school is practically to exclude religion, the power which more than all others makes for righteousness, which inspires hope and confidence, which makes possible faith in the whole human brotherhood, in the face even of the political and social wrongs which are still everywhere tolerated. To exclude religion is to exclude the spirit of reverence, of gentleness and obedience, of modesty and purity; it is to exclude the spirit by which the barbarians have been civilized, by which woman has been uplifted and ennobled, and the child made sacred. From many sides the demand is made that the State schools exercise a greater moral influence, that they be made efficient in forming character as well as in training the mind. It is recognized that knowing how to read and write does not insure good behavior. Since the State assumes the office of teacher, there is a disposition among parents to make the school responsible for their children's morals as well as for their minds, and thus the influence of the home is weakened. Whatever the causes may be, there seems to be a tendency, both in private and in public life, to lower ethical standards. The moral influence of the secular school is necessarily feeble, since our ideas of right and wrong are so interfused with the principles of Christianity that to ignore our religious convictions is practically to put aside the question of conscience. If the State may take no cognizance of sin, neither may its school do so. But in morals sin is the vital matter; crime is but its legal aspect. Men begin as sinners before they end as criminals.

The atmosphere of religion is the natural medium for the development of character. If we appeal to the sense of duty, we assume belief in God and in the freedom of the will; if we strive to awaken enthusiasm for the human brotherhood, we imply a divine fatherhood. Accordingly, as we accept or reject the doctrines of religion, the sphere of moral action, the nature of the distinction between right and wrong, and the motives of conduct, all change. In the purely secular school only secular morality may be taught, and whatever our opinion of this system of ethics may otherwise be, it is manifestly deficient in the power which appeals to the heart and the conscience. The child lives in a world which imagination creates, where faith, hope, and love beckon to realms of beauty and delight. The spiritual and moral truths which are to become the very life-breath of his soul, he apprehends mystically, not logically. Heaven lies about him; he lives in wonderland, and feels the thrill of awe as naturally as he looks with wide-open eyes. Do not seek to persuade him by telling him that honesty is the best policy, that poverty overtakes the drunkard, that lechery breeds disease, that to act for the common welfare is the surest way to get what is good for one's self—for such teaching will not only leave him unimpressed, but it will seem to him profane and almost immoral. He wants to feel that he is the child of God, of the infinitely good and all-wonderful; that in his father, divine wisdom and strength are revealed, in his mother, divine tenderness and love. He so believes and trusts in God that it is our fault if he knows that men can be base. In nothing does the godlike character of Christ show forth more beautifully than in his reverence for children. Shall we profess to believe in him and yet forbid his name to be spoken in the houses where we seek to train the little ones whom he loved? Shall we shut out him whose example has done more to humanize, ennoble and uplift the race of man than all the teachings of the philosophers and all the disquisitions of the moralists? If the thinkers, from Plato and Aristotle to Kant and Pestalozzi, who have dealt with the problems of education have held that virtue is its chief aim and end, shall we thrust from the school the one ideal character, who, for nearly nineteen hundred years, has been the chief inspiration to righteousness and heroism; to whose words patriots and reformers have appealed in their struggles for liberty and right, to whose example philanthropists have looked in their labors to alleviate suffering, to whose teaching the modern age owes its faith in the brotherhood of men, by whose courage and sympathy the world has been made conscious that the distinction between man and woman is meant for the propagation of the race, but that as individuals they have equal rights and should have equal opportunities? We all, and especially the young, are influenced by example more than by precepts and maxims, and it is unjust and unreasonable to exclude from the school-room the living presence of the noblest and best men and women, of those whose words and deeds have created our Christian civilization. In the example of their lives we have truth and justice, goodness and greatness in concrete form; and the young who are brought into contact with these centers of influence will be filled with admiration and enthusiasm, they will be made gentle and reverent, and they will learn to realize the ever-fresh charm and force of personal purity. Teachers, who have no moral criteria, no ideals, no counsels of perfection, no devotion to God and godlike men, cannot educate, if the proper meaning of education is the complete unfolding of all man's powers.

The school, of course, is but one of the many agencies by which education is given. We are under the influence of our whole environment,—physical, moral, and intellectual; political, social, and religious,—and if, in all this, aught were different, we ourselves should be other. The family is a school and the church is a school, and current American opinion assigns to them the business of moral and religious education, But this implies that conduct and character are of secondary importance; it supposes that the child may be made subject to opposite influences at home and in the school, and not thereby have his finer sense of reverence, truth, and goodness, deadened. The subduing of the lower nature, of the outward to the inner man, is a thing so arduous, that reason, religion, and law combined often fail to accomplish it. If one should propose to do away with schools altogether and to leave education to the family and the church, he would be justly considered ridiculous, because the carelessness of parents and the inability of the ministry of the church would involve the prevalence of illiteracy. Now to leave moral and religious education to the family and the churches involves, for similar reasons, the prevalence of indifference, sin, and crime. If illiteracy is a menace to free institutions, vice and irreligion are a greater menace. The corrupt are always bad citizens, the ignorant are not necessarily so. Parents who would not have their children taught to read and write, were there no free schools, will as a rule neglect their religious and moral education. In giving religious instruction to the young, the churches are plainly at a disadvantage, for they have the child but an hour or two in seven days, and they get into their Sunday classes only the children of the more devout.

If the chief end of education is virtue, if conduct is three-fourths of life, if character is indispensable while knowledge is only useful, then it follows that religion, which more than any other vital influence has power to create virtue, to inspire conduct, and to mold character, should enter into all the processes of education. Our school system then does not rest upon a philosophic view of life and education. We have done what it was easiest to do, not what it was best to do, and in this, as in other instances, churchmen have been willing to sacrifice the interests of the nation to the whims of a narrow and jealous temper. The denominational system of popular education is the right system. The secular system is a wrong system. The practical difficulties to be overcome that religious instruction may be given in the schools are relatively unimportant, and would be set aside if the people were thoroughly persuaded of its necessity. An objection, which

Dr. Harris, among others, insists upon, that the method of science and the method of religion are dissimilar, and that therefore secular knowledge and religious knowledge should not be taught in the same school, seems to me to have no weight. The method of mathematics is not the method of biology, the method of logic is not the method of poetry, but they are all taught in the same school. A good teacher, in fact, employs many methods. In teaching the child grammatical analysis, he has no fear of doing harm to his imagination or his talent for composition.

No system, however, can give assurance that the school is good. To determine this we must know the spirit which lives in it. The intellectual, moral, and religious atmosphere which the child breathes there is of far more importance, from an educational point of view, than any doctrines he may learn by rote, than any acts of worship he may perform.

The teacher makes the school, and when high, pure, devout, and enlightened men and women educate, the conditions favorable to mental and moral growth will be found, provided a false system does not compel them to assume a part and play a rôle, while the true self, the faith, hope, and love whereby they live, is condemned to inaction. The deeper tendency of the present age, is not, I think, to exclude religion from any vital process, but rather to widen the content of the idea of religion until it embrace the whole life of man. The worship of God is not now the worship of infinite wisdom, holiness, and justice alone, but is also the worship of the humane, the beautiful, and the industriously active. Whether we work for knowledge or freedom, or purity or strength, or beauty or health, or aught else that is friendly to completeness of life, we work with God and for God. In the school, as in whatever other place in the boundless universe a man may find himself, he finds himself with God, in him moves, lives, and has his being.

J. L. SPALDING.

PEORIA, ILL.

II.

THE AMERICAN HIGH SCHOOL. (II.)

PREPARATION FOR COLLEGE.

The High School, to the great mass of its pupils, will of necessity be the completion of their education. There are seldom to be found more than ten per cent., in any one year, who enter with the purpose of continuing their studies beyond the High School; and the proportion of such is usually much smaller. The chief work of the High School, therefore, must be to give the mass of its students the best preparation it can for the duties of life, and this without regard to requirements for admission to higher institutions. If, as some contend, the course best for those who intend to continue their studies through college is also best for those who drop out at any given point, then the main work of the High School will be the best preparation for higher institutions. This opinion, however, is not generally acted upon in the arrangement of High School courses.

But the preparation of students for college is widely, though not universally, recognized as a legitimate and important part of the work of the High School. It is best for the community that those who are competent and who desire should be encouraged to obtain a liberal education. It is also best for the High Schools themselves that they should do this work. It is generally the brightest and most promising of their pupils who are aiming at the college, and the presence of these gives a better tone and higher standard of scholarship to the whole school. Their example, when present, and their success in higher schools after they pass on, incite others to pursue advanced work. And so the supporters of the school receive a two-fold return.

But granting the right and expediency of the preparation in High Schools of students for higher institutions, we are met by certain special difficulties in the practical performance of the work. In the first place, a High School which has but few pupils to prepare for college cannot, without undue expense, devote to these the attention necessary to secure adequate preparation, unless these pupils are grouped with others not on the way to college. This often occasions the retardation of the college pupils because of the smaller capacity of their comrades. Again, the preparation for college is an art by itself, in a sense. Certainly the teachers most successful in this work are those who do no other. But the ordinary High School teacher has a multitude of other duties, and is overburdened by the number of his classes to a degree that militates greatly against the best work in the studies required for admission to college. Whenever the number of pupils preparing for higher institutions is sufficient to warrant the expenditure, the High Schools should be specialized. Boston, for instance, now has a public Latin School which prepares boys for college; a Girls' Latin School, which does the same service for girls; an English High School, which furnishes a general High School education, and six suburban High Schools, which afford similar facilities for the local communities far from the central schools. There is also in contemplation a Mechanic Arts High School, in which manual training shall occupy two-fifths of the time, drawing one-fifth, and appropriate book work the remainder. Other cities are separating their classical from their general students, and with valuable results. The mass of the High Schools, however, cannot thus specialize their work. Hence it happens that in many of these institutions the preparation for higher institutions is of a poorer order than that supplied by the best preparatory schools. The state of secondary education is probably better in Massachusetts than in any sister commonwealth; but on careful examination President Eliot, of Harvard University, avers that in that State "not one-tenth of the schools called High Schools maintain a course of study which enables the pupil to prepare himself for admission to Harvard College, or to any other college in the State which enforces its requirements for admission as stated in its catalogue."

The remedy for this lack of adjustment between the High Schools and the colleges is easy to state, but very difficult to apply. There must be an agreement among local authorities as to what constitutes a satisfactory High School course, and then an adaptation of the college requirements to this standard; or else the local authorities must accept the college requirements as a standard and adapt the main High School course to meet those requirements. As long as the present double standard is employed, the smaller High Schools of the country will be at an immense disadvantage in preparing students for higher institutions. In States which have a State College, with courses of study co-ordinated from the lowest elementary grade to the University, the problem is easier; but even there it is not altogether easy to maintain a high standard of preparation, except in favored urban communities.

MORAL TRAINING.

The High School, on the intellectual side, is accomplishing a valuable work for those who use its opportunities faithfully, but it has another aspect which cannot be passed unnoticed—its moral side. Though less directly provided for, and less obvious to the casual observer, the work of building character, which goes on every day, is quite as important, because quite as enduring, as that of building thought. It is in a period of transition from childhood, with its manifold confused beginnings, to manhood and womanhood, with their self-contained strength and action, that the High School has its pupil. He is not so plastic in nature as once he was, nor is his heart a white page, void of lettering; but he is capable of untold advancement and is subject to the molding of a right-hearted, strong-willed teacher in ways that take hold on eternal life. If now there be daily applied to him by a judicious master-mind the methods of treatment requisite for the development of a keen sense of duty, and for training in self-control, the High School in which the work goes on must be ranked with the church and the home as a valuable agent of moral advancement. No one cognizant with the facts will deny that the High School teacher has abundant opportunity to influence his pupils in their moral decisions and to implant the seeds of virtue in most promising soil. He can clear away the mists of ignorance, prejudice, and passion, that so often in the child's heart make the worse appear the better reason. He can place about his students such conditions as will suggest right and wise desires, and lead on to right and wise exercise of the will. He can permit freedom of choice at proper stages and so develop in the irresolute a strength of will which comes only from vigorous exercise. And, within the four years of his companionship with the student, he can continue these processes until habit is established. Then he may have the rich pleasure of beholding his pupil pass from school to the activities of life a youth of principle, whose moral choices turn, " as the needle to the pole," to the deliverances of conscience and sound reason; who is not the sport of whims or the victim of passionate storms, but is master of himself.

This is not merely an ideal picture. The process can be seen, by those who have eyes to see it, steadily going on in many a High School throughout the length and breadth of the land. The writer recently had occasion to learn with some definiteness the actual facts about the aims, methods, and results of moral training within the State of his residence. Correspondence was instituted with more than a hundred observers in nearly as many separate localities, some of whom were teachers, some clergymen, and others inspectors of schools. The correspondence made plain the fact that in at least four-fifths of the High Schools the leading teachers are directly aiming at the moral training of their pupils; the remainder appear to be satisfied with the general effect upon character of orderly school work in merely intellectual lines. This latter reliance is not in vain, for the direct tendency of mental culture, says Professor Payne, is to weaken the empire of the passions and emotions; consequently, mental culture is at the same time moral culture. But much more is done. The opportunities presented by such studies as history and literature are gladly seized and turned to account; public exercises, devotional and secular, are made to impress a high standard of morality on the hearers; private talks with individuals on special occasions, in which the treatment is closely fitted to the needs of the case in hand, are exceedingly common; the pupil is studied at his home, and the aid of parents is summoned; self-government is urged and insisted on; and—most effective method of all—many noble men and women in these schools are daily manifesting a lofty personal character and example which energize all other means of lifting the children to higher planes of motive and conduct. And as to results observed, the returns were very encouraging. Nothing is more intangible than moral results; and in case these results are tolerably evident, it is hard to say what part one agency plays when a half dozen others are at work in the same field. Who shall decide how much the school, the church, the home, and society have severally done to change the hoydenish, careless girl of fourteen into the lovely, self-sacrificing young woman who bears her diploma from the school door? Yet on some points the evidence is unmistakable.

There is universal testimony that senior classes in the High Schools show a positive moral advance as compared with the entering classes. The young people grow more thoughtful, conscientious, and trustworthy. They are keyed up to a higher moral tone. They accept responsibility, recognize and respond to duty, are less selfish, and more devoted to the right because it is right. One teacher says: "In our upper classes there is less lying, less flirtation, and a general gain in manliness and self-respect." Another letter gives particular instances: "I have seen a dirty, dishonest boy from the very slums (I have visited his home when he was fever-tossed, and the filth was indescribable) grow cleaner and better, till at the end we passed him clothed and in his right mind to the Technical School. I have seen vain, frivolous, showy girls, under a careful teacher's watchfulness, transformed into thoughtful, conscientious young women, now excellent wives and mothers. A boy whose word I could not believe at the end of his second year, I recently became security for, on his taking a place of trust. C—— I—— comes from an apology for a home. Her mother sells rum illicitly, and the day before she is to be graduated with honors she has to go to the police court to testify against her mother. Yet, under the constant care of a vigilant, prayerful instructor, this girl will make a successful teacher." From this we must believe that the moral possibilities of the High School are not ignored or misused in a vast number of these institutions. But just as there are some inefficient teachers, poorly equipped for mental leadership, so there are teachers careless of their moral responsibilities and fonder of their ease than of the moral welfare of those given for a time into their charge. But when all has been said that can be said of the moral failures in High School work, a grand balance remains on the credit side of the account. The High Schools of America may fairly be reckoned with the churches and the homes as making for good to the morals of the nation.

PHYSICAL TRAINING.

As a whole the High Schools are not taking special pains to secure symmetrical and healthful physical development in their pupils. Their main work is with the intellect; incidentally, but very effectually, they are busy with morals and manners; as regards the body, they do well if they avoid injury. This is true of the mass of schools in the past and in the present, but very probably will not be true in the near future. In the best schools now there is provision for light gymnastics for a few minutes each day; in a somewhat smaller number, military drill once or twice a week is doing a valuable service for the boys; in a very few, comparatively, are there well-appointed gymnasiums. Not one is known in which there is an attempt to have each pupil take, under the oversight of an expert gymnasial physician, the physical exercises which are adapted to preserve and develop the muscular equipment supplied by nature. Here is a defect which the increasing tendency of population toward city life makes important. The pupils of schools in sparsely settled districts find varied and vigorous exercises out of school, to counteract the harm wrought by sedentary habits within doors, though a well-planned gymnasial course would improve the physique even of country boys. But the city boy is hampered by his wealth of neighbors and poverty of green grass from pursuing the natural bent of his boyhood, and, unless the schools aid him, he will miss much of manly vigor which properly is his due. The laborious sports of his English cousin are beyond his reach; and the tame walk, in pairs, under the oversight of a tutor, which delights the French student, has no attraction for him. The best remedy seems to be that which has been suggested by the Boston School Board in its request to the City Council, that in every new school building provision shall be made for a gymnasium.

NEGLECTED TOPICS.

The limits of the present paper will not permit an adequate treatment of certain other topics that easily suggest themselves at this point; only the merest allusion can be made to them.

The first is manual training. Readers of this REVIEW do not need to be reminded that in the larger cities a tendency is manifest to specialize the High School still further, resulting in the Manual Training High School. Institutions of this kind, remarkable for their completeness of equipment and thoroughness of instruction, have been established as a part of the public school system at Philadelphia and Baltimore. In other cities, as at Omaha, Neb., Toledo, O., and Fall River, Mass., the manual work forms a department in the regular High School course. At certain points, as at St. Louis and Chicago, the manual training schools are not connected with the system of public schools. The course at Springfield may, perhaps, be taken as typical. There the academic studies are the higher mathematics, physics, a foreign language, English, and history. Drawing begins in the first year with the use of instruments and closes in the third year with brush-shading, pen and ink sketching, and finished drawings with full details. In the shop the first year is in wood-working, for which the pupil has been prepared in the grammar grade; forging, molding, etc., follow in the second year, and chipping and filing, planing and drilling, with machine construction, complete the course.

This phase of High School development is yet in the stage of experiment. It seems to have large possibilities within it, but serious difficulties of adjustment are to be met, and the evidence from existing experiments is somewhat conflicting. The plan appears to prove successful where numbers and means permit a separate High School to be equipped for manual work, but the union of manual with academic work in the same school has not so happy a promise. The theory of manual training is a sound one, if by this term we are to understand " thought-expression by other means than gesture or verbal language in such a carefully graded course of study as shall also provide adequate training for the judgment and the executive faculty"; and if the theory is sound, its application to High School education is only a question of time and of the adjustment of details.

Another question which will not down is that of coeducation of boys and girls in High Schools. Here it can only be said that a vast number of High Schools find the plan economical, beneficial to mental and moral work, and entirely satisfactory. The smaller number of schools in which the sexes are separated consists mainly of the older institutions, which have maintained the traditions of an earlier period.

Still a third topic on which much might be said, but must not, is that of High School buildings. In general they are the best buildings existing in America for school purposes. But they are of all varieties, from the wooden house with its one large school-room and two or three recitation-rooms, to the palace of brick or granite, furnished with luxurious appointments of every description. It usually happens that the High School is the favorite school of the community, and that upon the externals of its home popular sentiment permits generous expenditures. Recent years have witnessed a tendency toward less devotion to showy exteriors and greater care for ventilation, sanitation, and proper equipment for successful work, which tendency ought everywhere to be encouraged and fostered. Now and then, also, some possessor of wealth manifests at the same time an appreciation of the institution and a love for the community by building, equipping, and presenting to the local authorities an edifice of royal magnificence, as in the case of the B. M. C. Durfee High School at Fall River. Perhaps no better evidence of the hold this institution has upon the hearts of the American people can be given than a series of photographs of the High School buildings of our cities.

Still another phase of my general subject finds exemplification in the evening High Schools. For these, provision has been made in a few of the large cities on a generous scale. They are held for two hours an evening during the fall and winter months, commonly in buildings occupied in the day time by the regular schools. Fitness for advanced work is determined by a simple examination, and classes are formed in whatever High School subjects are demanded by pupils in considerable numbers. In Boston, where the evening high school has been maintained some thirty years, the service of some of the best teachers in the day schools has been enlisted for the evening classes, and the results have been most satisfactory.

THE ARGUMENT FOR THE HIGH SCHOOL.

I have now traced the genesis of the American High School from its germ in the wise forethought of the Puritan settlers to its realization in the present century. I have viewed the institution and observed its work upon the intellect, the moral nature, and the physical frame of its pupils. Let me now turn to another train of thought, and consider for a little whether the free public High School—so peculiar to our American civilization—really has a right to exist at all.

The High School, as an educational institution, has not lived seventy years without meeting with criticism and opposition. Some of this has been salutary, helping to improve the schools and to cultivate public opinion, rendering the great careless mass of the community discriminative for the time and in the end increasing its willingness to pay for excellence in instruction and equipment, which could not be obtained without generous expenditure. In general, criticism as to organization, methods, instruction, and results is to be desired, whenever it is not simply destructive but contains positive suggestions of improvement. But there has been opposition which was fundamental, and, so far as it had force, utterly destructive in tendency. Some of it was plainly selfish, and, therefore, unworthy of serious attention. There is, however, an element of opposition which is entirely honest. This ought to be met, for its adherents are reasonable and open to conviction.

Scarcely anywhere in the Union is there a State in which it is now an open question that elementary education should be provided for in public schools, supported by equal taxation, or by a permanent fund supplied by the State, or in part by both. The only exception lies in the case of those who for sectarian reasons desire private control of schools, and many of these are not averse to the application of public funds to the support of the schools, provided the control be in sectarian hands. But when we pass beyond elementary education we come at once upon what some regard as debatable ground. For there are men of prominence, who profess friendship to popular education, but deny the right to maintain by general taxation, or other appropriations of public funds, High Schools, academies, technical schools, colleges, or universities, which, though open to all alike, are entered but by comparatively few. Still others would have the expense of such institutions shared by the State and the parents directly benefited. The following extract from a published letter, written some few years since by one of the most eminent scholars of the country, is an excellent presentation of this latter view:

"I am not in favor of supporting schools above the grammar-school grade completely by taxation. I hold that the parents of children who go to High Schools should contribute a part of the cost of maintaining such schools. Suppose, for example, that the High School in a city of 40,000 inhabitants costs $30,000 a year, besides the interest upon the city's investment in land, buildings, and equipment for the school, and that there are 500 children in the school, I think it more just and expedient that the parents of each child should pay $40 or $50 a year for their child's great privilege, than that the city should bear the whole charge, provided the city maintain a certain number of free places for the promising children of persons too poor to pay a tuition fee. . . .

"Elementary education is of direct and universal benefit, and is not only a legitimate, but the most legitimate public charge. . . . Diffused elementary education is one of the essential conditions of the formation of that sound national character upon which the safety of our political institutions does absolutely depend. But the secondary and superior education seem to me to stand upon a different basis. They, too, are necessary to the State; but the selected individuals who receive such prolonged training profit so much personally that they or their parents should pay part of the cost. Let the great majority of parents who can afford it pay a part of the cost of their children's education, and let the meritorious scholars, whose friends are too poor to pay for them, have help from the public purse proportioned to their needs."

In reply to all who urge that State education should confine itself strictly to elementary instruction, or, in case it provides higher education, should demand repayment in part, the following considerations are submitted:

In the first place it is not difficult, but from the abundance of evidence would be tedious, to show that it has been the settled and prevalent policy of these States, as well as of the general government, to grant State and national support to schools of every grade from the primary to and including the university; and also that this was the accepted theory and practice of the colonies before the States were organized as such. Is it not wise that this policy should not now be abandoned, but, on the contrary, should be continued and extended, to meet the growing necessities of our ever advancing civilization? The founders of our nation had positive convictions on this point. John Adams believed that "the instruction of the people, in every kind of knowledge that can be of use to them in the practice of their moral duties as men, citizens, and Christians, and of their political and civil duties as members of society and freemen, ought to be the care of the public and all who have any share in the conduct of affairs." James Madison declares: "No error is more certain than the one proceeding from a hasty and superficial view of the subject; that the people at large have no interest in the establishment of academies, colleges, and universities, where a few only, and those not of the poorer classes, can obtain for their sons the advantages of superior education . . . . . Learned institutions ought to be favorite objects with every free people. They throw that light over the public mind which is the best security against crafty and dangerous encroachments on the public liberty." Thomas Jefferson early prepared a bill for the Legislature of Virginia (which then failed of adoption, however, and was never fully realized) providing not only for common schools but also for ten colleges, with a university for the sciences.

These statesmen did not believe that taxation is necessarily unjust if some do derive more, and others less, than an equal share of benefit from the specific expenditure. "There never was," says Judge Aldrich, "and in the nature of things cannot be, a law authorizing a direct or indirect tax which will operate with equal fairness upon the whole taxpaying portion of the people." Why tax the populous East to provide non-paying mail facilities for the far West and South? Because the general welfare is promoted by uniform and well-regulated communication between the different sections of the country; and also because the East derives peculiar benefits in turn from the operations of other laws and the service of other departments of the government. The objection brought against High Schools might be urged with equal force against numerous legislative acts, and indeed against whole departments of government. "Human governments, like the Divine, when comprehensively studied, will be found pervaded by the great law of compensation, and the parts can never be rightly understood except when viewed in their proper relations to the whole." Every State, city, or town requires educated men and women to assume important places of trust and responsibility, and to conduct with intelligence and rectitude the infinitely complicated affairs of a popular government. For this necessity it has the right to provide by the expenditure of public funds, exactly as the national government may rightly appropriate money for the support of the two schools at West Point and Annapolis, in which a few selected men are instructed in the art of war. In neither case is there the slightest injustice to the great number of tax-payers whose children are not thus educated. All such receive their compensation in the improvement which the whole community experiences in the better protection, the wiser administration, and the diminution of vice, crime, and poverty, which follow the prevalence of higher education.

Again, those who favor State provision for elementary education alone do not seem to comprehend how incomplete a thing this is which they aver to be so necessary to the welfare of society, when it is divorced from its proper complement, as they would have it. It is only the two together, the elementary *and* the High School, which form a complete whole. To be prepared for the duties of life one must be master of the principles according to which the phenomena of life proceed. The elementary schools teach little but particular facts and truths; it is the High School that reveals what is universally true. The lower schools appeal to the eye and the ear at the present; the High School reveals to the mind the causes of what is seen and heard. Its pupil can tell of the past and predict the future. To observe is the work of the primary scholar; to reflect is the privilege of his brother in the High

School; and it is reflection upon one's observations that makes a man a director of life's agencies. Can any one be said with truth to have a good common school education, who has not pursued a course of study at the High School?

In this connection it must be noted that the High Schools serve a most valuable purpose in increasing the efficiency of the elementary schools which feed them. When the higher education is within the reach of all, pupils in the lower schools are led to remain in them, that they may get all the information and training required as a preparation for the higher institution. "Experience has proved," says Francis Adams, "that elementary education flourishes most where the provision for higher education is most ample. If the elementary schools of Germany are the best in the world, it is owing in a great measure to the fact that the higher schools are accessible to all classes. In England not only have the aims of the elementary schools been low and narrow, but an impassable gulf has separated the people's schools from the higher schools of the country. In the United States the common schools have always produced the best results where the means of education have been the most plentiful." It is easy to see that just as the lower of two successive grades of schools affects the higher by the preparation it supplies for higher study, so the higher grade sends an influence downward respecting courses of study, amount of work done, and methods of teaching. The High Schools, accordingly, by the standards they set for admission and the opportunities they offer for a higher education are determining what the pupils in the elementary schools shall do and are incessantly stimulating them to accomplish it.

The High School repays the community by yet another service. It is a discoverer of talent and genius. The vital forces of every community center in its leaders; this is true whether we survey the domain of religion, of politics, of society, or of business. The few lay all the plans; the many, consciously or unconsciously, carry them into execution. Moreover there are born into every generation certain gifted minds and energetic characters that, with or without culture, will inevitably make themselves felt in a free community. Now it is of the greatest importance to the State that these should be discovered while yet they are in plastic condition, before the untoward experiences of life have warped and embittered them, and that they shall have ample opportunity, without regard to wealth or social standing, to receive such an education as will turn the power they will certainly wield into channels beneficent to the community. Furthermore it is important that the schools in which these leaders are trained should be public schools. The association of the richer with the poorer children, especially in the higher grades of our schools, affords an opportunity for the development of the social habits that are most mutually beneficial. On both sides sympathies are evoked which are, in the noblest sense, healthy and improving. Prejudices fall away under the stimulus of common interests and friendly rivalry on common ground. This is an admirable preparation for subsequent days when the students are all to stand as equals before the law of the land.

The suggestions thus far presented all have force in support of the position that it is both just and wise for the American people to give generous maintenance to their High Schools. But there is one consideration of a different nature which to many earnest thinkers has still more cogency. The former arguments are chiefly utilitarian; his has its roots in the inherent right of humanity to the development of its highest capacities.

The necessities of daily life drive us all, with few exceptions, to daily toil. The greater part of our energies must be given to some trade, or business, or profession. In this we often become heartily absorbed, and it is good for us so to labor. But neither necessity nor interest, nor both combined, can prevent, at times, the up-springing conviction that above our duty to be slaves to bodily demands towers our right to be men and women. Workmen though we are, building away each at his little corner of the vast structure of modern life, we yet venture to aspire to a wide view of its vast proportions.

We yearn to be participants in the higher living of humanity. "We must sometimes fight," says Aristotle, "but all to the end that we may have peace; and we must also labor, but to the end that we may find rest." The needs of our intellectual and spiritual natures are no less imperative than those of the body. "The ox, when released from the plow, straightway seeks his fellows of the herd, and man, too, if loyal to his higher impulses, will seek communion with the noble spirits of his race, when his hour of release from heavy toil has come." Yet as we look about us we behold but few to whom this relaxation of mind ever comes. Incessant labor, unrelieved by studies of the liberal and humanizing tendency, wrests and distorts the eternal form of the mind, "making of the man a thing." The toilers and searchers for success on all sides are making themselves companions of the clods in which they dig. Their vision is bounded by the earth beneath them, and seldom rises to the hill-tops tinged with glory. This is by no means all of man's privilege or destiny. The State should not be satisfied to rear children for such a manhood. In public education there must be a nobler aim,—nothing less than to endow every worker with aspiration for a broad outlook into life, to raise every boy and girl, if they will, into some degree of companionship with the best and wisest of mankind. Intellectual training is a universal good, like air and water, and that community is happiest in which it is distributed as generously and inexpensively as they; for there the rising generation, however doomed to future toil, may yet refresh its spirits in the delights of intellectual life.

This service cannot be rendered by the elementary schools. They supply not learning, but the instruments by which learning is secured. Besides, intellectual freedom is a matter of maturity; it implies some steadiness in the mental processes, a strengthening will-power, and orderly constructive ability. The High School it is which brings this boon to the hearts and homes of the people. With one hand it lifts the pupil's downcast face till his eyes behold the broad horizon of human knowledge; with the other it offers the golden key by which he may unlock every closed door upon his life's journey, to bring forth treasures new and old, for himself and for his community. From its portals a few climb to higher schools, offering larger opportunities and ampler returns; but many more turn at once to their tasks in the world's great workshop, carrying with them in their newly developed powers and freshly kindled aspirations—even more surely than in their actual attainments—the seeds of countless blessings to ripen as need shall arise.

CONCLUSION.

I believe, therefore, that the American High Schools are among the noblest of our public institutions. Every influence tending to withdraw support from them, or to weaken public confidence in their value, or to confuse the public mind as to the justice of maintaining them at public expense, is hostile to the best interests of all classes. They are the main reliance of the State in providing its future directive power. There are hands in plenty; but it is not hands that rule. It is brains, and education makes brains. The American people, in their unbounded freedom of thought and action, need the strong beneficent grasp of moral and intellectual culture. Therefore multiply the public High Schools, enrich their courses, and summon to them from every quarter the youth of the land. For in no other way can we so surely lay broad and deep and durable the foundations of true republican liberty and advanced civilization. "Remember," says Bacon, "that the learning of the few is despotism—the learning of the many is liberty; and that intelligent and principled liberty is fame, wisdom, and power."

RAY GREENE HULING.

HIGH SCHOOL,
NEW BEDFORD, MASS.

III.

THE FUNCTION OF LITERATURE IN ELEMENTARY SCHOOLS.

The average citizen of this great republic is familiar with the statements that "the public school system is the bulwark of our American liberties," as well as "the palladium of our national existence." He has come to regard the public schools as possessing a sacrosanct character peculiarly their own. It is not surprising, therefore, that he is more disposed to construe any criticism of the system as a covert attack upon our popular institutions, than to inquire seriously into the justice, or the injustice, of the criticism itself.

And yet, side by side with this self-congratulatory estimate of the worth of the schools, there has existed, as far back as any of us care to remember, a widespread dissatisfaction with the schools and their work. We have been variously told that the reasons for this are to be found in the one-sidedness of the schools; in their lack of unity of aim; in their overcrowded curriculum; in the superficial quality of their instruction. Our educational censors have not been unmindful of the importance of their discoveries to the community, and as a remedy for these evils they have advocated from time to time the adoption of certain panaceas of their own. Many of these measures have secured a trial in the schools, but as in the end they proved to be but little more than mere changes in method, they have one and all failed conspicuously to allay the restless discontent which to-day is more pronounced than ever before.

But of late years other voices, preaching a different gospel, have been making themselves heard; thoughtful critics have arisen who are loudly protesting against existing standards and methods. They tell us that our costly school systems are failing to do their proper work; that while our children are to a great degree ignorant of what they ought to know, they have become accomplished in ways that are vain, and skilled in things that are worthless. In their protests against the present practice of the schools, which makes the end of education either purely intellectual, or else utilitarian, and the child little more than a mere recipient of knowledge, our courageous critics go even further, and tell us that it is character, not knowledge, that the school should ever keep in view in its work of education; that we are trying to make bricks without straw when we blindly attempt to make the good citizen without making first the good man. They remind us again of that which to-day so many of us have forgotten, that "the knowledge which is not woven into the life and conduct of man is so far from being wisdom that it is often an enemy of wisdom and an obstructor of wise counsel."

When the time has come that our people shall be forced to listen; when the *Zeitgeist* shall move them as but the other day it moved the German emperor to give utterance to the significant statement that hereafter greater attention must be given in the Prussian schools to the teaching of the German language and literature, then one of the most powerful instruments of regeneration will be restored to American schools in the proper study of our own vigorous English speech, with its noblest of literatures.

Already forces are at work that will at no distant day rescue the study of our vernacular language from shameful neglect, and give to it its rightful place in our elementary schools: and witnesses are not wanting to testify to the vigor and the reality of these forces. From across the sea have come the words of one of the wisest and most conservative of educational critics, Prof. Laurie, of Edinburgh, who thus sums up the whole case for the study of the English language and the teaching of its literature: "Whether we regard the discipline of intellect, the substance of morality and wisdom, or the growth of the distinctly spiritual life, language as a formal or logical study, as a real study, and as a literary or art study, is and must always be the supreme subject in the education of a human being, the center around which all other educational agencies ought to range themselves in due subordination."

Aside from its supreme importance as a training in language, the study of literature may be made for children the beginning of an acquaintanceship with the best and noblest thoughts of mankind. The Germans have a proverb to the effect that whatever you wish to have appear in the life of a nation, you must first put into its schools. At present our schools can offer no better means of inculcating in the child a love for the noble, and a reverence for the good, than in the reading and the study of a literature which records the deeds of the one, and perpetuates the thoughts of the other. In tracing the close relationship which exists between the study of literature and the moral development of the child, Prof. Laurie has asked, "If we wish to train a boy in the true, or the good, or the beautiful, how are we to do it?" And he has answered his own question thus: "There is no way but by introducing him to the utterances of the wise and good on these questions, so vital to all, and a right answer to which alone makes humanity worth preserving. Through the perusal of literature alone can man enter into the possession of the hard won victories of the past, and make himself the fellow and companion of the greatest and noblest of his race, the prophets of all time."

The experience of mankind has proved that the possession of intelligence does not necessarily denote the coexistence of virtue; and more than once it has unpleasantly emphasized the fact, that a purely mental training often results in the production of an intellectual Frankenstein, a monster whose moral nature has been overshadowed and dwarfed by his intellectual qualities. This phase of one-sided development is met with not infrequently in our schools. The thoughtful teacher recognizes that of all the multifarious charges hurled against the schools, the accusation which merits the most serious attention is the one which declares that the State, in practice at least, has neglected to make adequate provision for the moral training of the children committed to its care.

With the question of teaching morals, *per se*, the present paper is not concerned, beyond noting that, in the judgment of the writer, their formal teaching in the public schools would, like the formal teaching of patriotism, be barren in its influences and colorless in its results. Such has been the invariable consequence wherever the scheme has been tried, notably so in the extended experiments carried on until recently in the colonial schools of Victoria. While deploring that in the present condition of public opinion the true solution of the difficulty seems as distant as ever, I am far from believing that our present condition is altogether hopeless. On the contrary, I am convinced that the school, by utilizing means already in its possession, can do much more effective work in the building of character than it is now doing; and not the least important agency for the performance of this great work will be found in the rehabilitation of that sorry and emasculated text-book, the modern school reader.

I am not of those who claim that in the reading and study of literature will be found the restoration of man's moral excellence, and the future regeneration of the world; yet, with Prof. Laurie, I believe that in the proper reading of literature by children we have the means not only of cultivating their taste and uplifting their imagination, but, what is vastly more important, of inculcating in them the precepts of morality, and of disposing their minds toward the contemplation of a higher and more spiritual life. This I conceive to be, to-day, the true function of literature in our elementary schools.

It has been amply demonstrated that the cultivation of the reading habit and the development of a correct literary taste in children may be commenced at a much earlier age than most teachers are prepared to admit, and that the foundation of such work can be profitably begun in the lower classes of our elementary schools. Fortunately neither the commencement nor the promotion of this important work will entail any radical change in existing methods, nor need it burden the already overladen backs of our teachers with more than they are carrying at present. The essence of the change consists simply in following the Biblical injunction of giving the child bread instead of a stone; in substituting for the inane and commonplace contents of the ordinary reader, the healthy, bracing reading-matter which the judgment of time has declared classic.

The first years of a child's school experience are devoted to initiating him into the mysteries of the alphabet and the primer. Having mastered their difficulties he passes onward to a graded series of readers which as a rule consists of five books,—"the five inanities," they have been called. The briefest examination of any of these books will show that the average reader is a purely hap-hazard collection of prose and poetical extracts of varying degrees of literary merit. In the lower numbers the contents are of such a vacuous and insipid character, and appeal so slightly to the interest or to the imagination of the child, that one is unavoidably forced to conclude that the selections have been made to order for grading purposes only. The third and fourth readers are less trivial perhaps, but even more commonplace. Where the selections have not been taken outright from standard works, they are generally feeble and uninspiring; and their literary value is *nil*, whether we examine them from the point of view of their thought-content, the language in which they are written, or the form in which they are cast. The literary value of the higher numbers is generally greater, inasmuch as the lessons are made up almost entirely of extracts from standard authors. Although the selections are not always wisely or even happily made, yet these readers present to children their only opportunity of coming in contact with real literature during their school course.

Nor does a closer inspection of our school readers disclose in them any hidden excellences that might have escaped a hurried first examination. Even in those readers which are made up of extracts from classic writings it is not always apparent that the selections have been made with the view of cultivating the taste of the youthful scholar, or of developing in him the habit of critical reading. Degraded, as the average reader has been, to the position of an educational maid-of-all-work, one finds scattered throughout it scraps of geography, bits of history, chunks of science, and an *olla podrida* of whatever may be the prevailing pedagogic fad of the day, be it physiology or patriotism ; but scans its pages in vain for those writings described by Plato as finding their gracious way into the secret places of the soul, exalting the minds of those who read them.

Constantly, series of readers are being advertised as differing widely from all others in their method, scope, and construction ; but a closer scrutiny will show that in form and substance they are essentially the same, the trail of the bookmaker being over them all. From an extended examination of the various series in use throughout our schools, it can be safely affirmed that, with a few notable exceptions, the majority of them are but shabby collections of fragmentary reading matter. Without any distinctively educational idea running through them, they merely afford the child the pitiful opportunity for a drill in reading words that he has already learned to spell. From internal evidence it would also appear that the making of readers has fallen largely into the hands of people who seem to be remarkably ignorant of the value of the study of language to culture, and who, moreover, are curiously devoid of that literary sense which is generally believed to be a *sine qua non* in the writing of books.

Do these strictures seem severe? Listen then to what the doughtiest of our public school iconoclasts of the nineteenth century, President Eliot of Harvard, has to say on the same subject : " I have paid some attention to the readers used in our public schools throughout the country. I have read an enormous quantity of them, and I can express the conviction that it would be for the advantage of the whole public school system if every reader were hereafter to be absolutely excluded from the schools. I object to them because they are not real literature ; they are but mere scraps of literature, even when the single lessons or materials of which they are composed are taken from literature. But there are a great many readers that seem to have been composed expressly for the use of children. They are not made up of selections from recognized literature, and, as a rule, this class of readers is simply ineffable trash. They are entirely unfit material to use in the training of our children. The object of reading with children is to convey to them the ideals of the human race; our readers do not do that, and are thoroughly unfitted to do it. I believe that we should substitute in all our schools real literature for readers."

This being the character of the books that nine-tenths of our school children are droning over to-day, can we wonder that with such a Barmecide feast spread before them the reading hour is so often a time of tediousness and somnolence, and that the teaching of their native tongue to children has become such a burdensome and unsatisfactory task! Considering all these circumstances, is it not strange that our school authorities have not long ago discovered that from the reading of real literature, as readily as from the reading of the twaddle which we are daily serving up to them, children acquire the ability to pronounce words? and this is all that most of the so-called reading lessons accomplish. And is it not equally apparent that real literature is vastly more interesting, and from an educational point of view infinitely more profitable to children, than the empty stuff which fills page after page of their readers? Another phase of the evils flowing from the constant use of our scrapbook readers, and one which has not received from teachers the serious attention it merits, is the baneful influence that such reading exerts on the mental habits of children. The uninteresting nature of the selections naturally begets inattention in the child, while their fragmentary character induces an inability for sustained attention that is destructive of all mental discipline. Under these demoralizing conditions, need we be surprised that there is developed in the child a vagrancy of thought which makes any ripe intellectual life impossible?

It is a matter of statistics that one-half of all the children who go to school leave before the age of eleven, and that three-fourths of them leave before they are twelve. With the school readers that are ordinarily in use it is a safe but a sad thing to say that the greater number of these children have gone out from the school without even a love for reading. It is a matter of personal experience, that all around us in this busy world we can find thousands of men and women, graduates of our public schools, and some of them coming from the colleges, who have never read anything save their text-books, and who never read anything to-day save the sensational novel and the still more sensational daily newspaper. The one duty of the school toward the child, which under existing conditions can be legitimately demanded of it, is to develop in him the power to educate himself when the doors of the school have closed behind him forever; this is the birthright of every American child. When the school fails, as failed in the past it has, in the performance of this duty, it not only robs the child of his right, but it defeats the end of our system of public education and even menaces the integrity of the State, by setting adrift in life thousands of young men and women who, floating helplessly along without any basic principles to guide them, are at the mercy of any demagogue who may address them.

Where, then, can be found an adequate solution of the manifold difficulties that beset us? I answer, in the proper reading and study of real literature by children; in the cultivation of the reading habit; and in the substitution of classic reading matter in our reading books for the cheap commonplaces of feeble book makers. There are not many educators in our schools to-day who are prepared to disagree with Prof. Laurie's proposition that "the content of literature in its various forms is a moral content, a religious content, and an æsthetic content. It is the substance of mind and the whole of man."

The earliest opportunity for the cultivation of a literary taste in children comes to the teacher when the child commences the second reader. To many this may seem an early age at which to begin this work, but teachers should be the last to overlook the fact that "the period which a child has lived before he reaches his teens is not only impressionable, but charged with the gravest potentialities," and that, once the ability to read has been acquired by him, this power should ever afterward be directed to his future happiness and growth.

It is curious to observe that the ordinary school reader has not utilized the most inviting field for the commencement of this important work. For, standing just outside the threshold of the school, awaiting in vain a proper grading by the bookmakers, is a vast array of valiant heroes of every age, from Hercules to "Little Lord Fauntleroy," whose deeds and personalities are more real and enduring to the average child than any of the creations of Homer or Shakespeare can be to their elders. When we consider the great amount of this material, and the world-wide territory it covers, ranging from the story of Polyphemus to *Alice in Wonderland*, it is passing strange that our bookmakers should have so completely ignored the educational value of wonder inhering in every child, and neglected such golden opportunities for the enlargement of their sympathies and the elevation of their ideals.

After a course of reading in selected classics to be continued through the third reader grades, the child will then be ready for the more mature forms of literature. For the first time the great world of books is now before him, and the success or failure of our efforts will depend upon the literature with which we make him first acquainted, as well as the means we employ in introducing him to it. I confess to having little sympathy with those educators who do not distinguish between meat for strong men and milk for babes, and who thus fail to recognize that literature written for adults is not always literature fit for children. Nor, on the other hand, can one with any literary conscience indorse the books usually placed in the hands of children. To say nothing of their character as literary productions, the constant perusal of books dealing with juvenile deeds and childish thoughts is enfeebling, if not destructive of the pupil's ability to climb to greater heights later on.

What middle course is there, then, that children can pursue with profit to themselves? In discussing this difficulty in a former paper the present writer, as a result of his personal experience in directing the reading of children, offered a suggestion which he now repeats: "It is true that our great works of literature were written mainly for adults; but, by the exercise of a wise pedagogic judgment and a nice literary taste, it is possible so to adapt them by compression, expurgation, and pruning, as to be able in most cases to find in them a complete, continuous, and interesting narrative, virile and invigorating; abounding, if needs be, in romantic adventures, in startling experiences, and in thrilling incidents; containing all that is fascinating in trash without any of its deleterious qualities; in short, the only sound and wholesome reading matter for children." It is interesting to note that the present editor of the *Atlantic Monthly*, in discussing the problem from the point of view of a litterateur, has made practically the same suggestion, "Not literature made to order to suit certain states of the juvenile mind, but those parts of existing literature selected in a wise adjustment of means to end—that is the solution of the problem of gradation."

Within these limitations it is possible to apply the principle of grading to complete works of literature, so as to bring most of our literary masterpieces within the comprehension of children, and at the same time to avoid the petty and emasculating scheme of grading that has been the boast of more than one widely advertised series of readers. In this way it would be practicable, within reasonable limits, to give to children what are virtually entire works of an author, and thus do away with the mangling process which has heretofore been our only means of introducing school children to any specimens of real literature. "The continuous reading of a classic is in itself a liberal education; the fragmentary reading of commonplace lessons in minor morals such as make up much of our reading books is a pitiful waste of growing mental powers. Even were our reading books composed of choice selections from the highest literature, they would still miss the great advantage which follows upon the steady growth of acquaintance with a sustained piece of literary art."

With such a scheme of reading carried on in the schools under the direction of earnest and sympathetic teachers, our public schools will experience a new birth ; the growth of a broad and generous culture will be commenced and the foundations of a discriminating, national taste will be laid. Under these elevating influences there must come a greater reverence for authority, a nobler sentiment of obedience, and a quickening of the spiritual life of the people, always the truest inspiration of the purest patriotism, and without which no nation can long exist.

GEORGE E. HARDY.

GRAMMAR SCHOOL NO. 82,
NEW YORK CITY.

IV.

RECENT SCHOOL LEGISLATION IN THE UNITED STATES.

To write anything like a comprehensive or intelligent *résumé* of the legislative action of the different States in the field of education is clearly a task of peculiar difficulty. Many school laws are enacted each year which are of great local importance, but which may attract not the slightest notice beyond State borders. Each State has its own local conditions which obtain in no other State. Differences, social and economic in character, show themselves in divergences of institutional development, and this is especially true of the educational history of our American commonwealths. We cannot fairly interpret either the spirit or the expediency of statutes unless we know something about the conditions with which the statute-makers have to deal. Few, even of those whose word is authority on such matters, would profess accurate knowledge on the various points of individuality in each of the fifty school systems under which the educational interests of our States and Territories are administered. Hence it would be idle, even if space permitted, to present in these pages a digest of all recent school laws, many of which have an importance purely insular, so to speak, and often entirely incomprehensible to the outsider. My present purpose is merely to attempt to trace the trend of legislation of the past two years upon a few questions of interest to educationists throughout the country.

SCHOOL FINANCE.

If a complete history of the finances of the American States shall ever be written, it is hardly too much to predict that its most interesting chapters will be those devoted to an exposition of the origin and development of the school tax and the school fund, not merely because these form the principal ele ments in the fiscal problems of many States, but because it was in these American governments that public elementary education first claimed recognition in a treasury budget, and here that legislators were first called upon to administer funds raised for purely educational purposes.

That our older State governments have nearly all, at different times, seriously blundered in the management of this important trust is generally admitted. In the new States of the West we may now observe the founding of finance systems. The South, also, may be said to be in her day of educational beginnings. Will old errors be repeated under new conditions? The question is one of profound interest to every American who thinks much on the future of his country, for great populations in years to come may be affected by action taken now.

Since the passage of the Ordinance of 1787, the educational interests of our great Northwest have been very largely identified with public land policy. This is as true to-day of Washington and the Dakotas as it ever was of Ohio. Note the conditions under which these new governments begin their careers of statehood: In addition to the customary two sections of land—the sixteenth and the thirty-sixth—in each township, which are to be reserved as the basis of permanent school funds, they receive also five per cent. of the proceeds of all public land sales made by the government within their limits from the date of their entering the Union. Provisions for the management of these school lands are contained in the constitutions of the several States, supplemented by acts of the legislatures. A summary of the regulations adopted by North Dakota will show the tenor of all.

A board of university and school lands is created, consisting of the governor, the secretary of state, the attorney-general, the State auditor, and the superintendent of public instruction. (In Washington, the State school land commission includes only the secretary of state, the auditor, and the commissioner of public lands.) To this body is intrusted the sale or rental of all educational lands, and the investment of funds arising therefrom; but constitutional and statutory provisions closely restrict the board in these transactions. Not more than one-fourth of the school lands is to be sold within the first five years, and not more than one-half the remainder within ten years. The residue may be sold at any time after the expiration of the ten years. In each county, the superintendent of schools, the chairman of the county board of commissioners, and the county auditor (in Washington, the county commissioners only) together form a board for the appraisal of school lands. No land shall be sold for less than ten dollars an acre. The purchaser may pay one-fifth cash, and the remaining four-fifths at intervals of five, ten, fifteen, and twenty years, with interest at six per cent. payable annually in advance. The sales are to take place at county seats, by public auction, to the highest bidder. The most valuable lands are to be sold first. Coal lands may be leased, but never sold. (Washington requires only one-tenth cash on agricultural lands, but the whole must be paid within ten years. Lands near cities are to be platted into lots or blocks, and the terms of sale are, one-fifth cash, and one-tenth of the balance annually thereafter. There is also special provision for the sale of growing timber.) If taxes are unpaid on lands thus sold, the contract of sale becomes null and void. All these provisions apply also to lands held in trust for the State university, the school of mines, the agricultural college, the reform school, the deaf and dumb asylum, and the State normal school. Under the terms of the law of 1890, tracts of land not exceeding in the aggregate 100,000 acres were to be offered for sale in North Dakota between April 15 and June 1, 1891.

North Dakota permits the moneys of her educational funds to be invested in national or State bonds, bonds of school corporations within the State, or first mortgages on farm lands in the State, not exceeding in amount one-third the actual value of any subdivision on which the same may be loaned, to be determined by the board of appraisers of school lands. Washington restricts such investments to national, State, county, and municipal bonds. (Constitution of Washington, Art. 16.)

Owing to the prevailing and growing practice of "legislation by the people"—*i. e.*, the embalming of ordinary statutes in the organic law of the community—the details of school-finance policy in these new western commonwealths seem practically determined for some years to come. Amendments to State constitutions are not easily or hastily obtained, and perhaps there is really more danger that in future such measures as may be required in the interest of the school fund and its preservation, will be delayed in adoption, than that injudicious meddling or tinkering will ever be tolerated.

A law of the last Nebraska legislature submits to popular vote an amendment to the constitution providing that the educational funds of the State may be invested or loaned on registered school district bonds, or first mortgages on improved land.

Most of the States which have had legislative sessions during the past winter, have given their formal assent to the terms and conditions of the act of Congress of August 30, 1890, for the more complete endowment of State agricultural colleges. Each State receives under this act $15,000 the first year, $16,000 the second, and so on for ten years. After that, the annual amount will be $25,000.

In addition to the proceeds of land sales, there are other sources of increment to the permanent school funds of many States. Thus Oregon (closely followed by Washington) devotes to this purpose all moneys which may accrue to the State by escheat and forfeiture, all which may be paid as exemption from military duty, and the proceeds of all property granted to the State when the purpose of the grant is not stated. Besides the ordinary expenses of school support and maintenance, the interest of this irreducible fund may hereafter be applied to the purchase of school libraries and apparatus. (Oregon statute of 1891.)

Wisconsin has already set apart a considerable portion of her share in the direct tax refund (act of Congress, March 3, 1891), to be added to her school and normal school funds. This will doubtless be the course pursued by many of the States.

In the matter of school taxation a new departure has just been made by Vermont, where a law was passed, last year, levying a permanent State tax of five per cent. on all ratable property, for school purposes. (" Ratable property," in Vermont, means one per cent. of the actual valuation, so that this school tax is equivalent to a half-mill tax.) Previous to 1890, Vermont had no State system of taxation for school purposes. All the school moneys were raised and disbursed by the towns. The State superintendent of education, in his last report, recommended the adoption of a State tax, mainly on the ground that it would equalize the burdens of school expenses throughout the country districts. Under the old system, it was alleged that at least one-third of the people of the State, living in the less populous districts, were compelled to pay a much larger proportionate tax than the other two-thirds, for equivalent advantages.

Among the Southern States, Alabama has just taken an important step in the administration of her school moneys. Henceforth the apportionment of the State fund to districts is to be made without regard to race, but with sole reference to the " equal benefit of the children thereof between the ages of seven and twenty-one years." The State superintendent of education is required to apportion the fund to the townships and school districts according to the entire number of children of school age. The county superintendent, as soon as he receives the apportionment to his county, shall notify the trustees of each township or district of their several proportions. (Township trustees, in Alabama, have supervisory powers similar to those of the town superintendent in New England.)

Throughout the South, appropriations for education are steadily increasing. The funds, as a rule, seem to be wisely and carefully handled.

SCHOOL SUPERVISION.

The systems enacted into law in several of the new States are, in general, elaborations of old and long-tried plans, as developed in such States as Michigan, Wisconsin, and Minnesota. The several schemes of State, county, and district supervision are each carefully defined and set in operation. North Dakota and Washington passed general laws for this purpose in 1890, and South Dakota in March of the present year. Wyoming made no changes in her school laws on becoming a State. The writer is not informed as to what action, if any, has been taken by Idaho and Montana since their admission.

Rarely has the question of school supervision roused so much interest in any State as during the past three years in Vermont. In 1888 a school law, which had been prepared with great care by leading educators of the State, was passed by the Legislature and approved by the governor. In place of the old system of township supervision, this new law provided for the organization of county boards and the election of county supervisors. County supervision (not precisely in the form introduced in Vermont) has been adopted, as is well known, in most of the States. The Green Mountain State, however, after a two years' trial, determined to go back to her former methods, and the Legislature of 1890 abolished the county system. The details of the township system are now practically as they were before the change of 1888 was attempted. The State superintendent, in his report for 1890, made before the Legislature met, did not speak with unqualified approval of the practical workings of the experiment of 1888, but urged that time was needed to fairly test its merits. Apart from this change, most of the important features of the new law were permitted to remain untouched.

COMPULSORY EDUCATION.

Two years ago, important laws relating to school attendance were passed by at least four States. At the time, there was not much general discussion of either of these. Probably the Ohio law attracted most attention. Indeed it was considered by the State commissioner of public schools the most important educational legislation of his State for a quarter of a century. Its important provisions may be summarized as follows: Parents or guardians must instruct children, or cause them to be instructed, in spelling, reading, writing, English grammar, geography, and arithmetic. Children between the ages of eight and fourteen years must attend a public or private school for a period of not less than twenty weeks in city districts each year, ten weeks of which shall be consecutive; and in village and township districts not less than sixteen weeks of each year, eight of which shall be consecutive. The child is exempted from such attendance when its physical or mental condition is such as to make attendance impracticable, or when it is taught at home, by qualified persons, in such branches as are usually taught in primary schools. It is made unlawful to employ children under fourteen while the public schools are in session, unless they have complied with the requirements, or are exempt. Minors over fourteen and under sixteen, who cannot read and write English, are required to attend a public day school at least one-half of each day, or an evening school, or to take private instruction, until they obtain certificates that they can read at sight, and write legibly simple sentences in English. Employers are required to exact such attendance from minors in their employ. The enforcement of this law is intrusted to truant officers, who are vested with police powers. The act may be suspended, temporarily, in the case of children under fourteen, wholly or partially dependent on their own labor for a living, or whose labor is necessary to the support of others unable to provide for themselves. In 1890, a requirement was added, that all youths between eight and sixteen, not regularly employed, should attend school for the full term each year.

This Ohio act of 1889 has been summarized here, rather for the purpose of exhibiting the general character of most recent laws on the subject, than because of any specially noteworthy features or any striking originality. The principles have long been embodied in the Massachusetts and other statutes. The Ohio law, in most of its details, may be taken as a type of the latest American legislation on compulsory education. North

Dakota in 1890 and South Dakota in 1891 passed similar laws, requiring, however, only twelve weeks' attendance. A like regulation in Washington will probably be wholly ineffective because of the absence of any provision for enforcement.

The Wisconsin and Illinois laws of 1889 have already received full and able treatment in the pages of this REVIEW.[1] It is only necessary to state here that the principle of compulsory education, *per se*, was not attacked in the political campaigns of last autumn. The only part of the Bennett law, or of the companion measure in Illinois, that was under fire at all, was the clause declaring that no school should be regarded as a school under the act, in which were not taught reading, writing, arithmetic, and United States history, *in the English language*. Even this part of the law was not new. The Massachusetts act of 1877 contained essentially the same requirement as to private schools. The Bennett law has now been repealed. The condition of Wisconsin now, as regards compulsory education, is about what it was for ten years under the old law—which was never enforced in those districts where it was most needed. Attendance is now required, for twelve weeks in the year, of children between the ages of seven and thirteen.

One provision of the compulsory law of Colorado is unique. Needy children are not only to be provided with books, but clothed as well. This step seems to nullify the last excuse for ignorance in this progressive Western State.

Massachusetts last year amended her compulsory law, extending the period of required attendance each year from twenty to thirty weeks. This far exceeds the minimum set in other States.

SCHOOL TEXT-BOOKS.

Most of the important phases of State school-book legislation have been recently discussed in another periodical.[2] It remains for me merely to note a few changes of the past few months. Washington and Missouri are added to the list of States adopting the "State contract" system. Boards appointed by the governor are to contract with publishers to supply the schools of the State with text-books in the common branches for a period of five years. State uniformity in text-books is a necessary accompaniment of this system. Quite a different policy is that of Iowa. Nothing more extensive than county uniformity is aimed at, and even that is left to the option of the districts. Each district board is authorized to contract for books to be supplied to pupils at cost. (There is no requirement as to dealing directly with publishers.) If a majority of the voters express themselves in favor of uniformity throughout the county, a county board of education, consisting of the county superintendent, the county auditor, and the county board of supervisors, is to select and contract for all books used. The Mississippi law of 1890 differs from that of Iowa in making provisions for county uniformity and county contracts mandatory, rather than optional with the districts. It is made the duty of the county boards of education to provide for the adoption of a uniform series of text-books every fifth year. Teachers are forbidden to give instruction to any pupil who is not supplied with the books thus adopted.

---

[1] See EDUCATIONAL REVIEW, I: 48.

[2] Prof. J. W. Jenks, in *Political Science Quarterly* for March, 1891.

In New Jersey the trustees of all public schools are authorized, by a law of 1890, to provide text-books for the free use of pupils. No vote of the districts is required, as in Michigan, but there is nothing to compel the trustees to act in the matter. Nebraska has just adopted the Michigan plan of local option. Ohio has made the supplying of books to indigent pupils mandatory.

TRAINING OF TEACHERS.

The Legislature of Arkansas, at its recent session, passed an act "to improve the teaching in the public schools." This act provides for the establishment of eight normal schools—six for white teachers, and two for colored. These schools are to hold consecutive sessions of three months each during the year. The courses of instruction are to have more direct reference to the needs of the rural communities than to those of the towns. There will be at least one school in each congressional district of the State, and it is hoped that the system will exert an influence upon remote districts which could not be reached by institutions located in the centers of population exclusively. The legislative grant for the maintenance of these schools is meager—only $2000 a year for the eight, but it is the first appropriation that Arkansas has ever made for the specific purpose of training her teachers. It is welcomed by the trustees of the Peabody fund, and others interested in the education and elevation of both races, as a distinct advance.

In Missouri, provision is made for a teachers' institute in each county, to continue for one month, for the training and licensing of teachers. A State training school is to be maintained for the preparation of institute conductors and instructors.

In Massachusetts and Minnesota, the diplomas of State normal schools are made equivalent in effect to teachers' certificates. A new statute of Oregon defines the qualifications requisite to obtain a "State diploma."

HIGHER EDUCATION.

The firm hold which the State universities have gained in most of the Western States is evidenced by the increasing liberality in legislative appropriations. Wisconsin, for example, has provided for an annual addition to the university income of some $50,000 for the next six years. This is obtained by increasing the State tax. Ohio has made similar grants.

The College of South Carolina has been less fortunate of late. The policy of "economy" introduced by the Farmers' Alliance administration is said to have seriously crippled an institution of which the State has had good reason to be proud.

In Maine, the policy of making State appropriations to the county academies in the State has been steadily growing in favor. The granting of subsidies of $500 to $1000 a year to these institutions, in addition to the aid given by the State to over 200 free high schools, can hardly fail to diffuse an interest in higher education, and thereby lead to an increased attendance in the colleges. Such, at least, is the view of prominent educators in the State.

The university extension movement has at last reached legislative halls. On the first day of May, 1891, the Governor of New York signed the bill authorizing the Regents of the university to organize courses of instruction on the university extension plan in the different cities, towns, and villages of the State, and to conduct examinations. The Regents are to establish a sort of central bureau for this work. The entire expense of the lecture courses is to be borne by the communities benefited. The headquarters at Albany will somewhat resemble the university centers of England in relation to the general extension movement. Lecturers will be recommended, and various aids furnished. All friends of the movement will watch with great interest the experiment about to be undertaken by the Empire State.

WILLIAM B. SHAW.

NEW YORK STATE LIBRARY,
ALBANY, N. Y.

V.

DISCUSSIONS.

OBJECTIVE METHODS OF TEACHING ELEMENTARY READING.

"The logical sequence in learning oral language is: first, the object; second, the idea; third, the word; therefore the same order should be followed in learning to read written or printed language." This has been adopted by many modern educational writers as the philosophical basis of their methods of teaching elementary reading. I venture to raise the following objections to the principle:

1. Visible language is not a *new* language. In any of its varied forms, visible language is simply a means of representing the oral language with which the child is already familiar. The problem of learning to read is not the acquisition of new names for ideas or things. The words in written or printed language are identical with those of spoken language. Oral and visible language are not two different languages, but one language with two modes of representation or expression, one recognizable through the ear, and the other through the eye. Reading is the art of extracting thought from visible language. He is a perfect reader who can acquire thought from visible language as readily as from oral language.

2. The conceptions expressed or represented by visible language are not new. They cannot be new. A word representing an object with which the child is not acquainted, suggests no idea to his mind. The ideas recalled to the mind by visible language of any kind must have been in the mind previously, or they could not be recalled. The thought and the language must have been learned before a pupil can read or recognize them in visible form. The thought and the language remain unchanged. There is no new thought to require a new language, therefore the new form of the language cannot be learned as was the old form (the oral) in direct association with, and as the immediate result of, new thought fresh from new objects.

3. Learning to read is not a means of extending the child's

vocabulary. His vocabulary should be increased by systematic language lessons. It will also be necessary to explain to him the meaning and use of some of the words in his reading lesson. Such explanations are in reality no part of the reading lesson proper. It is a pity that new words should form any part of the visible language the child is learning to recognize. When they are found in the reading matter they should be explained before the child makes any attempt to read them. The child should not be allowed to try to read any word in visible language before he is familiar with its use in oral language. Language lessons and reading lessons must not be confounded.

4. Oral language is natural; visible language, in any form, is artificial. All children not deaf, learn to speak without direct training. No thoughtful parent ever said to a child, "This is a spoon, or a cup, or a doll, or a chair," while pointing to the thing named, with the intention of teaching the names of things. How utterly absurd such a lesson would be!

Children use oral language naturally. This is their natural way of communicating to others the ideas they have in their minds. If they have the ideas definitely, their language will be correspondingly definite. They use the oral language used by those with whom they associate, English, French, German, as the case may be. They speak the language correctly if they hear it spoken correctly. Correct pronunciation and correct construction are as easily learned as incorrect. Oral language, being natural, is learned without conscious effort. Visible language, being artificial, has to be learned by conscious process.

5. When using oral language the thought suggests the words; in reading, the words must suggest the thought. In oral language the idea must precede the word, because oral language is a means of expressing thought, and a thought cannot be expressed until it has been conceived; and as the clearest conceptions come from real things, the logical order for spoken language must be: object, idea, word. All these conditions are reversed in reading, however, and therefore we cannot logically follow the same process. It is quite true that visible language is, like oral language, the expression of thought; but reading is the recognition, not the expression, of thought. In reading, the idea is received through the word, not the word from the idea, and so we must begin with the

word instead of ending with it. Of course, we cannot get an idea from a word unless we had the idea before, and had it in association with the word used. Words do not create ideas in the minds of children learning to read; they recall ideas already in their minds; and the process of reading consists in looking at words and recognizing through them the mental pictures they represent. This is true of words, of sentences, of chapters, and of books. The only order possible in reading is from the word or sentence to the thought, and any process that reverses this essential order retards the progress of the child in learning to read. The teacher should carefully avoid the suggestion of the word by the thing or the conception it represents, while the pupil is learning to recognize visible language.

6. We have to deal solely with words, not objects, when we are able to read, and therefore our aim should be to give the mastery over the recognition of words as early as possible. A child can read well when he is able to extract thought automatically and rapidly from printed or written matter. *The teacher's first aim should be to make word-recognition automatic.* When word-recognition has become automatic, the child can give his full mental power to thought-recognition. So long as any part of his attention is given to word-recognition, he cannot give his whole mind to thought-recognition. The power to recognize words automatically should be developed, as all power is developed, by the repetition of the necessary processes, slowly and consciously at first, but with increasing rapidity until it becomes automatic.

An object should never be used to suggest the name of the visible word. Reading cannot be made a method of obtaining thought from objects. The use of the object to suggest the recognition of the visible word interferes with the development of the power that is absolutely essential in the recognition of visible words. It retards the immediate and the ultimate progress of the child. The object-lesson is not a reading lesson. Reading cannot be confined to object-lessons. The chief aim of the object-lesson is to give power to gain fresh knowledge from things. The aim of the reading lesson is to give power to extract thought from visible language.

7. The strongest argument in favor of the use of objects in connection with the reading lesson is based on the absolute necessity for a strong bond of association between the idea

and the single word which represents it. The importance of this association cannot be too strongly stated. The misapplication of this true principle will be evident, however, if we remember that in learning to read the child is not learning a new language, but merely a new means of recognizing the language it already uses. The association between the words and their corresponding ideas becomes definite when the child is learning to speak; and the only step left to be taken is to make the association ready and definite between the spoken word and the written or printed word, which is its visible representation. The child cannot read intelligently, either silently or aloud, language which he does not speak intelligently. He should never be allowed to try to do so. The child's language corresponds with the ideas in his mind, and recalls these ideas to his mind. He should not be permitted to have two ways of recognizing an idea by language till its recognition by one way is accurate and automatic. The oral way is the natural way, and must precede the visible way. The child begins the process of learning to read with a large number of conceptions which are represented in his spoken language by corresponding words. Each conception instantly suggests its appropriate spoken word. The spoken word immediately recalls its corresponding conception. The conception recalls the object, because it is the mental picture of the object. The following is a logical sequence:

1st. The object—hat.
2d. The idea—hat.
3d. The spoken word—hat.
4th. The visible word—hat.

The child is thoroughly acquainted with the first three steps in the sequence before he begins to learn to read. Logically the first two are one, so far as reading is concerned. Any one of the first three steps instantly recalls the others without any conscious effort on the part of the child. If we try to take the fourth step before the first three are automatically associated with each other, our course is illogical. The only question to be settled is: With which of the first three can the fourth, the visible word, be most easily, most naturally, and most philosophically associated?

The answer to the question propounded will be found as soon as we decide to which of the other steps the visible word is most definitely related. We can have no difficulty in deciding. There is no relationship whatever but an arbitrary one, between the shape of a hat, or our mental picture of a hat, and the visible word "hat." No relationship was intended. Our language is not a system of hieroglyphics. Every means used to make our language visible, in any form, is based on the philosophical foundation of the representation of the individual sounds of spoken language by corresponding visible signs. Visible language is therefore directly and philosophically related to spoken language, and as soon as the relationships between their corresponding elements are clearly understood, the one language becomes convertible into the other by a regular and logical process that speedily becomes automatic. On the other hand, the association of the visible word with the object or idea directly is necessarily an arbitrary process, and must inevitably remain such. A great many very ingenious plans have been adopted to simplify this arbitrary process, and to try to make it conform to "natural laws"; but however beautifully it may be clothed or padded, its natural deformity can never be concealed. It must remain an arbitrary process to the end.

The case, therefore, clearly stands thus: The first three steps in the sequence are indissolubly bound together, before the child begins to learn to read. The first two, the object and the idea, are really one, so far as reading is concerned. These two on the one hand, and the spoken word on the other hand, are automatically inter-suggestive. By reading we are to make the very same word, in another form, recall, or suggest, the very same idea that has been regularly brought to our minds by the spoken word.

8. In the *expression* of thought, the thing and its name are mutually and automatically inter-suggestive in both spoken and written language. This is not so in regard to *recognition* either in spoken or visible language. In recognition the name recalls the thing much more certainly than the thing suggests its name. We look at thousands of things every day, and even use them, without being conscious of the fact that they have names at all. The thing was not made for the name, but the name was made for the thing. These considerations show that it is unphilosophical to use the object as a means of suggesting, or aiding in the recognition of its name. The name should be, and in the practice of reading it must be, recognized independently. It is the duty of the teacher to

see that the words recognized have corresponding ideas, but the association of ideas with words should never be made through visible language, and therefore this work is not a part of the process of learning to read.

9. But the association of the spoken word with the idea was arbitrary, and yet it was accomplished in a natural and definite way; does it not follow that the visible word should be directly associated with the idea through the object in a similar manner?

This question really means: Cannot a name be associated with a familiar idea through the eye as naturally as it has already been associated with the same idea through the ear? Certainly not, for the following reasons: First, oral language is natural and visible language is not. Second, language should be learned through the ear and not through the eye. Third, it is impossible to have the visible names of all things attached to or directly associated with them. Fourth, if every object on the earth had its name written or printed on it the idioms would be lacking. Fifth, in order to communicate through the eye, every individual would have to carry with him a complete set of words or the means of making them.

10. The ablest advocates of the object-word method do not believe in it themselves, except for a short period, and within a very limited range of words. This is the most peculiar fact in connection with the wide range of literature on methods of teaching reading. Men devote page after page to theorizing in order to establish a philosophical basis for a method, and having established it to their satisfaction, they immediately repudiate it by limiting its application to a comparatively insignificant number of words. Some use their own so-called logical method for only about fifty words. Very few now suggest its use for more than two hundred words. But even if it were philosophical in its application to a small number of words, as its advocates claim, its pedagogical value would be too insignificant to make it a correct foundation for a method of teaching.

The sum of the whole matter is this: Oral language is the expression of thought, reading is the recognition of thought expressed in visible form. In oral language the thought suggests the word; in reading the word suggests the thought. Oral language is a means of using thought, reading is a means of gathering thought. These statements being true, it follows that the analogy between the processes of oral expression and reading cannot be logically sustained.

JAMES L. HUGHES.

INSPECTOR OF SCHOOLS,
TORONTO, CANADA.

A GRAMMATICAL COLLOQUY.

RHETOR. "Both Smith and Jones were present." Is that perfectly good English or not? I somehow feel that it is not.

SYNTAX. My friend, you surprise me; the sentence is faultless. It cannot raise a grammatical qualm in the most squeamish of hypercritics.

CRITIC. But Rhetor declares that it does raise such a qualm in him. How do you account for that?

SYNTAX. An illusion! Rhetor deceives himself. His qualm is purely imaginary.

CRITIC. I believe it real, on the contrary; and, what is more, capable of a satisfactory explanation.

RHETOR. Do be good enough to explain it, Mr. Critic.

SYNTAX. Yes, let us have the explanation by all means.

CRITIC. The source of the feeling, evidently, is the word "both," on whose import, accordingly, the explanation turns. The force of "both," speaking syntactically, may be resolved into two factors. Originally, it was only a limited adjective, defining the application of the noun which it restricted, to two objects; but later it acquired the additional function of a connective, reinforcing "and," with which it is commonly associated; while later still it assumed this latter function so predominantly that, dropping almost wholly its limitative office, it was applied indifferently to two objects or more than two; since which, reverting in modern usage to two objects exclusively, it has gradually concentrated its force in the connective function until, instead of merely limiting the noun to two, it has come to interlink the two so closely as to suggest a kind of shadowy unity, bearing about the same relation to the allied suggestion of plurality, it is true, that a secondary or tertiary rainbow bears to the primary. The connective factor has so dominated the limitative factor and intensified itself, nevertheless, that it gives the two objects, in some faint measure, the force of collective unity. But unity, collective or individual, requires a verb in the singular, which the two objects linked by "both" do not get, as they do not yet deserve, if they shall ever deserve it; whence arises, I conceive, that vague feeling of disagreement which puzzles our friend Rhetor. The obscure suggestion of unity, emerging first, instantly encounters the suggestion of plurality, which, though indefinitely the stronger, is blurred, so to speak, by the collision. It is this blur, resulting from the conflict of these opposing suggestions, that disturbes his critical instinct. *Hinc illa nauseola!*

RHETOR. The explanation appears reasonable to me.

SYNTAX. But it does not answer your question. Does this blur, as you call it, Mr. Critic, corrupt the purity of the sentence? Do you mean to say the expression is bad English?

CRITIC. Not precisely; for it is still protected by good usage. If, indeed, one would realize in how slight a degree usage after all has moved in this case, he has only to reform the sentence on the lines whereon usage has been moving, so that it will read: "Both Smith and Jones was present." In this form it must shock everybody, and him perhaps most of all whose refined sense catches the subtle incongruity of the accepted form. Rhetor's qualm, I hold, is real, but the fault which excites it is not sufficiently clear and distinct to be stigmatized as false syntax.

SYNTAX. What, then, does your blur signify?

CRITIC. It signifies that if usage should go farther on these lines, the present form may fall under the reproof of criticism, and, before it is positively condemned, be quietly dropped by the best writers. It signifies that "both" has become so strong a connective that if it becomes much stronger it will pair the objects it connects; in which event it either will have to be used with great caution or discarded altogether. In a word, it signifies a nascent solecism: it is a buoy marking a hidden rock in the current of good English.

SYNTAX. A buoy invisible to the naked eye cannot answer a very pressing need, I think.

CRITIC. Possibly not. Meantime, I venture to say, there are those even now who, admonished by the fine qualm to which Rhetor confesses, give a wide berth to the form of expression that occasions it.

RHETOR. This I certainly do, for one. Before a plural noun referring to two, and in the nominative case, or two singular nouns equivalent to such a noun, I habitually avoid the use of "both," feeling instinctively, I suppose, what our friend Critic has enabled me to perceive consciously, that the whole force of the word runs counter to the syntax of the sentence. Thanks to him, I can now give a reason for the faith that has long been in me.

SYNTAX. Pardon me, but, in my opinion, your reason and your faith are of a piece,

> A bolt of nothing, shot at nothing.

The truth is, if I must say it, you and Critic in this matter, it seems to me, do exactly what Bays in the Dunciad invokes his goddess to do:

> You quite unravel all the reasoning thread,
> And hang a curious cobweb in its stead.

CRITIC. Take heed, my good friend. In the matter of words you know the advice of the poet whose lines you have just adapted:

> Be not the first by whom the new are tried,
> Nor yet the last to lay the old aside.

You may be trusted not to head the procession, but whether you will keep up with it or lag behind is another question, which I respectfully commend to your consideration. Who was it defined a fogy as a conservative run to seed?

SYNTAX. You, I guess.

PAUL R. SHIPMAN.

EDGEWATER PARK, N. J.

VI.

FOREIGN CORRESPONDENCE.

CONTEMPORARY EDUCATIONAL THOUGHT IN FRANCE.

The year 1890, following that of the Universal Exposition, noted for its pedagogic congresses and reunions, has not been as remarkable from the pedagogic point of view as its predecessor. But useful reforms, and, above all, that slow advance in detail which can alone solidify educational institutions, have held their usual course.

National education always occupies the first place in the public mind. Without pretending to rival Germany in pedagogic fecundity, works in which the future requirements of our instruction are discussed, and in which principles and methods of discipline and teaching are explained, increase daily, and France is becoming a classic land of pedagogy.

The three grades of our public instruction attest equally the ardor of this awakening interest, this constant desire for progress; and I shall strive in a few words to point out the salient points in our pedagogic history since the close of the Exposition in 1889, by glancing at the three grades of instruction—elementary, secondary, and higher.

At present there is least to say of elementary instruction. It is quietly striving to apply the laws which since the establishment of the Republic have caused a revolution in the popular instruction of our country. In order to put legislative propositions of such considerable moment as compulsory and lay education into practical effect, it is necessary, as the proverb says, "donner du temps au temps." The secular tradition of indifference as regards public education, and the complete submission to ecclesiastical authority, are not overthrown in a day. The active campaign of the French clergy in 1881 against "the wicked laws and the Godless schools" is well known. But in spite of the strenuous resistance which for the past ten years has been opposed to the will of the liberal majority in the Chamber of Deputies, by bishops in their pastoral letters, priests in their sermons, and the whole Catholic Church in its daily work and, above all, by the refusal of its sacraments, the lay school—national, not confessional, where morality rather than dogma is taught—is firmly established in France.

Many signs indicate that the aims of the new laws are fast becoming facts. The conflict of past years has given place to an armistice. The clergy have not given up the fight against those educational institutions which are guilty, in their eyes, of separating the school from the Church, and of forbidding all interference in elementary instruction. But its most influential members are forced to confess that the cause of lay instruction is gaining ground in France. This is what Monsignor Freppel, deputy from Brest and Bishop of Angers, confessed with some bitterness in his New Year's address to the clergy of his diocese: "The dechristianization of the primary schools is progressing slowly but surely, and as this advance is silent, it has become all the more dangerous, since, as in all other matters, we shall end by becoming accustomed to it." Yes, we are becoming accustomed to it, for this dechristianization of elementary schools—that is to say the sectarian character of the programmes, and the lay teaching body—accords with the principle of liberty of conscience; since in a school which is attended by children of all religions, to which Catholics, Protestants, Jews, and Free-thinkers are legally obliged to send their sons, it is inadmissible that the instructor, who himself may belong to any religious confession, shall be forced to teach the dogmas of some one church. We are becoming accustomed to it, because all observers, of whatever party, know that lay instructors, though they do not teach the Catholic catechism any longer, are not less careful of the religious belief of their pupils. The true promoter of our academic revolution, M. Jules Ferry, laid great stress upon this point in his circular of the 17th of November, 1883: "Vous ne toucherez jamais avec trop de scrupules à cette chose delicate et sacrée qui est la conscience de l'enfant."

Another sign of this armistice is the silence of the representatives of the clerical party in the Chamber of Deputies during the discussion of the budget of public education for 1891. M. Charles Dupuy, reporter of the budget, in reply to a deputy of the Right who advised more economy in educational expenses, said, during the meeting of the 20th of November, 1890: "It seems to me that you have given up launching imprecations and invectives against the laws that we have made; and if you do this no longer, it can only be because these laws have become accepted facts."

In spite of the great results achieved, our system of elementary instruction has not reached its highest possible development. The regularity of school attendance is far from satisfactory, and compulsory attendance exists only on paper. In rural schools, as soon as field work begins, in the spring months, the children stay at home. Our village schools are little more than half-year schools, deserted during the summer months by a large part of their population. When our fields are covered with crops requiring the attention of all the family, the school benches are deserted. And it is to be feared that the only solution of this problem will be the establishment of "half-time" schools, which, instead of the regular six hours session, shall require but two or three hours of attendance, leaving the child free for the remainder of the day. It is far better to have the children in school for a short time than not at all.

If we are still groping for the solution of the problem of regular attendance and that of providing diligent pupils for our one hundred thousand public school teachers, our primary instruction seems to have hit upon programmes that at least are definitive, and whose general characteristics should not be materially modified.

Secondary instruction has become, however, a veritable battlefield, where humanists and realists, the defenders of ancient languages and the adherents of modern languages, of that instruction whose frame-work is the study of French, German, English, and the sciences, contend with each other. The educational value of Greek and Latin is under discussion in every state in Europe. The German Emperor, who in his leisure moments does not disdain to be a pedagogue, has just brought this question before the Prussian kingdom. In 1889 the Hungarian Parliament, during seven sessions, discussed the question of the advisability of retaining or discontinuing the study of Greek in the gymnasia. In France, too, the discussion is heated, and has been carried on for several years without arriving at any definite solution.

At the present time two courses of secondary instruction coexist in our lycées and colleges. The classical course, properly so called, dating from the sixteenth century,—which, in spite of successive modifications and numerous adaptations and accommodations to meet the wants of modern society, has for its basis the study of dead languages,—and the so-called "enseignement spécial," organized in 1866 by a minister of the Second Empire, M. Victor Duruy. This second course was intended by its founder as a professional course—practical and technical—a preparation for industrial, agricultural, and commercial careers. But in less than thirty years the aspect of affairs has changed. The "enseignement spécial" is no longer content with the modest rôle marked out for it by its originator.

General practical instruction—the education which anticipates industrial careers—is now given in our higher primary schools; those newly established schools that are a continuation of our elementary primary schools, and which are attended by not less than 34,000 pupils, girls as well as boys.

The "enseignement spécial," under the title of French secondary instruction, is fast becoming a means of general culture, accomplishing by other methods the same results as the Greek and Latin classical learning. Many concessions have been made. The bachelor's degree in "l'enseignment spécial" was created several years ago, conferring the same privileges as the bachelor's degree in letters or science, and thus throwing open many liberal careers to the holder of such a degree. This year has been marked by a considerable advance. The Cluny Normal School, opened by M. Duruy, whose aim was the education of teachers for "l'enseignement spécial," has been closed. Hereafter there will be but one course of training for the teachers of the two grades of secondary instruction. In doing away with this dual preparation of teachers, it would seem that the equality between classical learning and secondary instruction was declared. Other changes are talked of, and it is probable that in a short time the Government, which has promised the Chamber of Deputies, through M. Bourgeois, Minister of Public Instruction, that the position of classical learning shall be defined, will end by proclaiming a perfect equality between the two sections of our secondary instruction.

This cannot be accomplished without much difficulty and much resistance. There are still in France a large number who believe that a liberal education is impossible if the study of the authors of antiquity is abandoned. Parents are generally opposed to sending their children to a lycée where only

French and modern languages are taught. Latinism is still all-powerful in molding the traditional tendencies of most of our fellow-citizens. And if the heads of the university attempted, I do not say to abandon, for they do not dream of that, but to restrict, to its proper allowance of time, the study of Greek and Latin in public instruction, it is to be feared that a large portion of the patrons of the university would leave the lycées and enter religious schools, above all those directed by the Jesuits,—which are still flourishing in spite of the decrees of proscription,—where instruction can be found in keeping with the traditions of our country; an education based on the worship of the masterpieces of classical antiquity.

For if, on one side, we see such practical men as M. Berger, the organizer of the Universal Exposition, such deputies as M. Siegfried, and such poets as M. Jean Richepin, forming a national association to organize the new instruction, but proposing to throw out the study of Greek and Latin; we hear, on the other hand, ardent demands and protestations not only from humanists by profession, but from independent philosophical thinkers. Among the foremost of these may be quoted M. Alfred Fouillée, one of the most eminent representatives of contemporary French thought, who in a recent book, "L'enseignement au pointe de vue nationale" (Hachette, 1891), undertakes the defense of classical learning, threatened by the encroachments of the utilitarian spirit. He strives to demonstrate, without laying any stress upon the well-known arguments, that ethical and national reasons—race affinities—should force France to regard the study of Greek and Latin as the exclusive and privileged source of a liberal education. Without attempting to foretell the future, it is probable that the contradictory exaggerations of to-day will sink into accord. From the encounter of these two classes of pedagogic fanatics—one holding that all is lost if the Ark of the Covenant is but touched, the other pretending that it will only be satisfied with the declaration that all dead languages are but useless lumber—will result, I trust, an arrangement, an agreement tempered by reason. Without suppressing the study of the past, the study of modern languages will gain its proper place in the programme.

Meanwhile, all sorts of measures are taken to improve the administration of our boarding-schools, with the intention of introducing more kindness in discipline, more life and light and purpose in the method of instruction. Attention has been drawn to the dangers of mental over-pressure, and, to obviate these, the length of class and study hours has been reduced, the school day has been shortened, and we are gradually appreciating the truth of the rule, that you in America know so well, the rule of the three eights: "Eight hours to work, eight hours to play, eight hours to sleep."

At the same time, through a tardy imitation of the school methods of England and America, physical culture has regained its place of honor. In all provincial towns, as well as in Paris, associations have been formed to encourage athletics. Games of foot-ball, paper-chases, not forgetting French games, are pursued with ardor among our collegians; and if anything is to be feared, it will no longer be the old-time indifference to the education of the body; it will be, rather, that physical over-work will take the place of mental strain.

There is no space to speak at length of the progress of our higher education, comprised in the Faculties of law, medicine, letters, and science. During the last fifteen years our Faculties have been transformed. The number of professors and students has almost doubled, the right to receive gifts and legacies has been conceded, and although generous givers are rarer in France than in America, we trust that individual liberality will add to the largess of the State. It is with the aim of encouraging such gifts, as well as to increase the respect with which the Faculties are regarded, that the Government has submitted to the Chamber a plan of university reorganization; thus conferring a title abandoned among us for the past hundred years, but which still retains its prestige among foreigners. These universities are to be established in a certain number of towns, where the best work is now done.

But no vote has yet been taken, and at this moment the outcome is a passionate rivalry between the different cities, which possess flourishing Faculties, to gain recognition for their claims to be universities. Montpellier has placed herself in the front rank by the splendor of the fêtes with which she celebrated, in 1890, her sixth hundredth anniversary.

In reality the title of university, when conferred by the Chamber, will be but a nominal change, a simple decoration. Our Faculties now possess the scientific and literary standing which constitutes them seats of higher education. Lyons, to give but one example, has its four Faculties of 110 professors and 1700 students, admirably housed and equipped.

While the attempt is made to bring to life the universities of the past, under a new form, to meet the present wants of society, patient scholars are exhuming our university history. P. Denifle publishes, under the auspices of the General Council of the Faculties of Paris, the "Chartularium universitatis parisiensis." A professor in the Faculty of Law at Caen has commenced, under the patronage of the Minister of Public Instruction, the publication of the statutes and privileges of French universities from their foundation to 1789. The first volume is ready, consisting of not less than 1000 pages, and comprising all documents relating to the universities of Angers, Orléans, and Toulouse.

But while we are congratulating ourselves upon this retrospect of our national past, we are by no means indifferent to what is passing in the Old as well as the New World.

One of the promoters of physical training in France, M. de Coubertin, who was sent on a mission to the United States, has published an interesting book entitled "Les Universités Transatlantiques" (Hachette, 1890). We have learned from this to pay more attention to the love of learning, by which you, too, seem to be possessed; to acknowledge that material interests no longer engage all your attention; and to measure the scientific vitality of a country where universities are founded, and develop, with the same rapidity as manufacturing towns. Take, for example, Cornell University, at Ithaca, which, with its 94 professors and 1400 students, can throw down the gauntlet, after only twenty-five years of existence, to the universities of Europe.

GABRIEL COMPAYRÉ.

RECTEUR D'ACADÉMIE,
POITIERS, FRANCE.

VII.

EDITORIAL.

It was noted in this column last month (II: 77) that there is a distinct movement in this country toward the elevation of the standard of admission to the professions of law and medicine. Since that time the very important announcement has been made that the University of Pennsylvania proposes at an early day to extend the university course in medicine from three to four years. This is a significant and courageous step, and one that will greatly redound to the credit of the University. A similar move at other large universities cannot be long delayed. It remains to secure good material in the professional schools by insisting upon rigid requirements for admission.

As the time approaches for the meeting of the National Educational Association at Toronto, signs multiply that the meeting is to be of more than usual interest and importance. For the first time the Association meets on foreign soil, and the contact with men of different training and environment from our own cannot fail to be beneficial. The school system of Ontario is remarkable for its efficiency in some points where our own is very weak, and visiting superintendents and principals cannot do a wiser thing than employ a few days in studying those features of the Ontario system that will throw most light upon their own work.

In at least one other respect the Toronto meeting will be noteworthy. The programme is for once not overcrowded. It is so arranged that attention is to be centered for a reasonable period of time upon a single subject or a related group of subjects. This invites intelligent discussion of each topic presented, and also makes it possible.

At least one familiar figure will be absent from the gathering. John Hancock, of Ohio, than whom few schoolmasters in this country were better known, died suddenly in Columbus a few weeks since. For a generation Mr. Hancock's vigorous speech and ready wit have been heard at educational gatherings. His work as city and State superintendent of schools was well done, and he leaves behind him an enviable reputation for energy and efficiency.

So great has been the progress made by the manual training movement that even such notable events as the recent Boston conference, the very striking exhibit of work at Hoboken, New Jersey, and the action of the Brooklyn Board of Education looking toward the establishment of a manual training school in that city, attract but little attention. They have become almost everyday occurrences. The campaign of theory and argument has been succeeded by the patient and thorough solution of the practical problems involved in the new branch of instruction. The same story of successful experience is repeated from all parts of the country. Occasionally a voice is heard crying in the wilderness, but most of the opponents of five years ago are now the more or less positive friends of manual training. It is only just to add that this result has been brought about in spite of the bombast and nonsense talked by certain prominent advocates of the movement.

The slowly developing science of education is in need of facts. It abounds in theories. Many of them are ridiculous, some are probable; but all are more or less uncertain. There has been no national organization in this country to devote itself to the accumulation of the facts of education, and to their scientific interpretation. Much of the pedagogics now being taught at colleges and normal schools is the merest nonsense. It is made up in about equal parts of platitudes and rash deductions from an uncertain psychology. The really earnest students of education are clamoring for facts, carefully observed, truthfully recorded, accurately interpreted. At one or two universities the accumulation of these all important data has been begun in pedagogical seminaries. But many of those best qualified to assist in the work are not attached to the universities. The time has come when all such persons should band themselves together in a true pedagogical society, a society of students. By the exclusion of educational hacks, noisy declaimers, and untrained enthusiasts, such a society can be successfully formed, and it will be of the greatest possible service to the country and to the schools.

As the above paragraphs are passing through the press, a call is published by responsible and capable students and teachers, for a meeting to form an American pedagogical society, the distinct object of which is to do the work the lack of which was deplored above. Such a society is worthy of all support, and will, if wisely managed, have a successful and useful career.

Among the promised attractions of the Chicago Exposition in 1893, is a series of international congresses of education, similar to those which were so successful at Paris in 1889. The Board of Directors of the National Educational Association referred the suggestion for such congresses to a committee, and as a result of its deliberations the carrying out of the plan has been intrusted to a committee of eleven, the Commissioner of Education being chairman. There are to be ten congresses, one for each of the ten divisions of educational work made by the first committee to which the matter was referred; and the arrangements for each are in the hands of some one member of the committee of eleven, appointed for that purpose. The members of this latter committee are nominated by the Commissioner of Education and confirmed by the Executive Committee of the National Educational Associations. The Commissioner has nominated the following persons: W. N. Hailman, of Indiana, Kindergarten; Louis F. Soldan, of Missouri, Elementary Education; Ray Greene Huling, of Massachusetts, Secondary Education; Nicholas Murray Butler, of New Jersey, Higher Education; John W. Cook, of Indiana, Normal School; William H. Maxwell, of New York, School Superintendence; A. J. Rickoff, of New York, Industrial Education; James Mac Alister, of Pennsylvania, Art Education; Walter Damrosch, of New York, Music; C. W. Bardeen, of New York, Educational Publications.

The city of Brooklyn has enjoyed the reputation, for half a century, of being, in educational matters, one of the most conservative in the country. As yet it has neither college nor university. Up to six years ago it could hardly be said that there was a high school there. Two reasons may be assigned for this backward condition of affairs. The first is the rapid growth of population—a growth unparalleled in any other city of the country except Chicago. In 1840 the population of Brooklyn was 36,233. In 1880, it had risen to 566,663. At the present writing it is, at the lowest calculation, 875,000. The population is composed, for the most part, of families of moderate or slender means. The demands made upon them to meet the material wants arising from the rapid growth of the city, rendered futile, up to very recent years, every attempt to obtain the means necessary either to provide adequate accommodations for the common schools or to establish high schools. As a consequence, Brooklyn has become the paradise of private schools. These private schools are intended for the children of the rich and moderately well-to-do. The child of the poor man, until recently, had little or no opportunity to obtain an education beyond that afforded by the elementary common schools.

The other reason for the slowness of educational progress in Brooklyn is its proximity to New York. Not merely in matters educational, but in other departments of activity, the former city has been overshadowed by the latter. Under such circumstances men do not develop that civic pride, that public spirit, which are the necessary conditions of great urban improvements, either educational or material. About ten years ago, however, a great change took place. During the mayoralty administration of Mr. Seth Low, now President of Columbia College, the attention of the public became focused on the public schools. The buildings were found to be poorly constructed and disgracefully crowded. The methods of instruction were, for the most part, antiquated, mechanical, and lifeless. Liberal appropriations, the burden of which has been cheerfully borne by the people, have not only increased but vastly improved the school accommodations. The standard for admission to the teaching corps has been raised. New life has been infused into the work of the schools, and improved methods of teaching are being gradually introduced. And, lastly, the city has invested half a million dollars in high schools, which promise to be among the best in the country.

All this progress has been the direct result of the wisdom and liberality of the city authorities, among which the Board of Education is, of course, included. The spirit of advancement in educational work, which seems to be contagious, has also given rise to two noble institutions, that not only supplement but aid the work of the public schools—the Brooklyn Institute of Arts and Sciences and Pratt Institute. Both possess features that are worthy of imitation in other cities. The Brooklyn Institute is unique of its kind. It is neither school, nor college, nor university in the proper sense of the term; and yet it would not be improper to describe it as a university for the people who are past school or college years. It is not part of any university extension scheme; yet, though a purely local institution, it provides university extension in the best sense of the word. It is not a school specially devoted to the learned few, or to the unlearned many; it finds room and provides intellectual nutriment for the unlearned as well as the learned; for the general as well as the special student. It is not a society devoted to a single science or art, but a union of twenty-four societies, or departments, devoted to as many different sciences or arts. While each department is a unit in itself and controls its own affairs, all the departments contribute to the general support of the Institute. Each department receives a portion of the income, according to its membership, derived from the fees paid by all the members; but the payment of a single fee entitles each member, no matter to what department he may belong, to the privileges of instruction in all other departments.

Each department, as far as possible, so differentiates its work as to interest both the specialist and the general student. It provides opportunities for original research as well as means for the diffusion of popular knowledge. The department of architecture, for instance, holds conferences that are interesting only to architects, while providing courses of popular lectures on the various orders and ages of architecture. The department of biology has not only provided courses of lectures on botany and zoölogy, but has established a summer school and biological laboratory under the direction of Professor Conn, of Wesleyan

University, and a competent corps of assistants at Cold Spring Harbor, L. I. The laboratory is housed in the New York State Fish Commission building, and is provided with every modern appliance for original investigation. Again, the department of psychology, after listening to a course of eight lectures by distinguished specialists on the salient features of the subject, is about to enter upon an extended investigation of the psychology of child life. And so it is with all of the departments. Each is doing something to add to the common stock of knowledge; while, by means, not of a disjointed arrangement of meetings and discussions, but of systematic courses of lectures, it is spreading broadcast before the people knowledge that is usually confined to college halls or learned societies. Besides the courses already mentioned, others have been given on the history of the English language, on English literature, on Constitutional law, on Dante, on sculpture, and on painting.

The great favor in which the Institute is held by the people of Brooklyn is shown by many significant facts. Its membership has increased from 70 in 1888 to 1700 in 1891. The number of general and departmental lectures and meetings has increased from 12 in 1888 to 230 in 1890, and 310 in 1891. Land to the extent of forty-five acres has been set apart by the city for the erection of suitable library, lecture, and museum buildings. The State Legislature has authorized the city to expend $350,000 for the erection of buildings, provided that the Institute shows that it is possessed of available funds to the extent of $200,000—a sum which is now practically in hand. The Institute, through its unique organization—an organization largely due to its director, Professor Franklin W. Hooper—is doing much for the cause of education. When its buildings are erected, it will have a plant unsurpassed in this country either for the conduct of original research, or for the dissemination of knowledge.

Of an entirely different character is Pratt Institute. The Brooklyn Institute provides educational opportunities for those who desire to employ their leisure time in supplementing their school or college education along the lines of literature, science, and art; Pratt Institute is itself a school—a school of applied science and technical art. The Brooklyn Institute is democratic in the sense that it is controlled by its members; Pratt Institute is also democratic, yet it is controlled, not by its students, but by regulations laid down by its founder, Mr. Charles Pratt. Mr. Pratt, whose recent death has aroused a lively sense of gratitude for his benefactions to the cause of education, was a man of marked characteristics. Starting in life with nothing save his own abilities and character, he had achieved wealth and conquered a high social position. With very few educational advantages in youth, he had made himself, in the best sense of the word, an educated man. "He was an educated man," has said one of his admirers, "in distinction from the scholar, and he had been for the most part his own teacher. Some of the forms of culture he may have lacked because of his early disadvantages, but if education's finest result is the despotic control of one's faculties for practical ends, then he was an educated man." Thus it came about that he had the means to carry on single-handed a great educational work, the desire to undertake it, and the wisdom and ability to accomplish his object. Neither his own early struggles, nor the views of life attained in maturer years, had made him averse to literary training. His rich gifts to literary institutions, and the fact that he gave each of his sons a college education as a preparation for commercial avocations, are sufficient proof that he felt and acknowledged the power and necessity of literary and scientific training.

But it is the great glory of his life that in a city in which nothing had been done to provide manual training, in an environment in which the trend of educational thought was wholly opposed to that method of education, in advance of the philosophers and more clearly than the professional educators, he saw that the conditions of modern life demand that the hand and eye shall be trained as well as the memory, the executive faculty as well as the reasoning powers. He had meditated on these problems and reached his conclusions years before he took any definite step to put them into execution. Finding that he could not formulate a clear and comprehensive plan without a concrete object, he set about erecting the present buildings and engaged two instructors in drawing. This was the beginning. The Institute was opened October 17, 1887, with twelve pupils in drawing. This year three thousand students have been enrolled in the seven different departments.

Roughly speaking, there are three main divisions in the work of Pratt Institute. First, industrial work, in which 90 per cent. of all the students are engaged, and which is carried on in special and professional lines for the purpose of training in handicraft, and includes nearly all trades, from millinery and dressmaking to brick-laying and plumbing; second, Normal work in three departments,—cooking, art, and vocal music,—in which teachers are trained; third, a manual training high school, in which it is sought to give the student an ideal all-round education. These three lines of work are the fruit of Mr. Pratt's own planning. All the wisdom gathered in a busy life was brought to bear in the development of the institution. Other plans he did not live to accomplish, but they will doubtless be carried out by his sons. In this school he has left not only a worthy monument of himself but an example which other men who have the requisite means and the philanthropic disposition would do well to imitate.

VIII.

REVIEWS.

A Sketch of The Philosophy of American Literature.—By GREENOUGH WHITE, A. M. Boston: Ginn & Company, 1891, pp. iv, 66.

This little book—it is, in fact, only a pamphlet—is an attempt to suggest, as far as may be done in so narrow limits, the conditions, social, political, ethical, out of which American literature has grown; and to prove thereby that that literature has an independent and genuinely national character. There is no better sketch of our literature in so brief compass. Mr. White, however, seems most successful in his discussion of the earlier periods of our literary history; his treatment becomes less satisfactory just as he reaches the time when the literature begins to grow interesting. The half-century from 1830 to 1880, the period of intellectual and moral ferment which gave rise to the transcendentalist movement, the anti-slavery movement, and varied schemes of social and economic reform, this was the period when, for the first time, our national life seemed able to express itself in a vigorous and genuine school of literature. But Mr. White hardly succeeds in analyzing this movement clearly into its various elements or in showing how they got embodied in literature. This failure is due in great measure to the unfortunate limitation of his work which "excludes all mention of living authors." It is evidently impossible to give adequate illustrations of this first important period of our literature without reference to Lowell, or Whittier, or Holmes.

The truth is that the history of our literature before the beginning of this century may be written very much after the fashion of the chapter on the snakes in Ireland—there wasn't any literature. There were great men on this side the water—men the peers of any in Europe—there were great things doing here; but there was no great literature or writing. The ability of the country did not express itself in letters. Bradford, Ward, the Mathers, Byles, Barlow, Trumbull, these were not great men, and the literature of the English language would hardly be the poorer if every line of their writings were lost; while the men who were really great, even though they may have left written record of their thought,—like Edwards, Franklin, Jefferson,—do not hold their fame by virtue of literary gift or work. The philosophic historian of American literature before 1800 has, therefore, little left to do save to account for this sterility. And this is not difficult. The causes of our literary barrenness are on the surface. Mr. White has stated them very well. The country was sparsely settled; there were few readers; there were no libraries, no means for the frequent and easy interchange of ideas; no leisure, no possibility of literary atmosphere or opportunity. Nor were the early colonists men who, in any circumstances, would have written great books. In the southern colonies they were largely drawn from the most shifting and lawless classes in England. The New England settlers were, it is true, exceptionally upright men; yet it must be admitted that the Puritan type of character, at all events the Massachusetts phase of it, was not a type of character from which literary production could be expected. To the English Puritan, it is true, indeed, the literary historian has often been unjust. We should remember that our great and only epic was written by a Puritan, and the Puritan type of character has now and then produced very great work since that day; Thomas Carlyle, for instance, was essentially a Puritan—minus the Westminster Confession. But the New England Puritan was narrowed by isolation, hardened by persecution, and by a constant sense of his own militant attitude toward the world. He had little humanity; and without humanity literature is impossible.

Nor was there any noteworthy development of literature here during the eighteenth century. Mr. White, indeed, speaks of the "magnificent cycle that extends from early in the eighteenth century to about the close of the second war with England"; but it is a very meager array of literary names that he can find to set in that cycle. In that period Americans were developing political ideas more wisely and rapidly than any other people on earth. The very conditions of their existence were a lesson in the nature and limitations of self-government. Edmund Burke early noticed that they were a nation of lawyers, and that the books they read were largely legal and political. But the literary taste and gift were not developed. The great revolutionary movement produced no poet, no historian, and hardly a single piece of pure literature above the fourth order of merit. It did produce some few good specimens of oratory and a considerable body of very valuable political philosophy.

And we cannot think that Mr. White has proved his central thesis, that American writings are in no sense imitative, but original. He protests urgently against the notion that our literature is a "reflection of fashions beyond the Atlantic." The misconception is, indeed, natural, he says; it arises from the fact that "the advance of thought in America has been, historically, about one generation behind each corresponding advance in England, and thus appears merely imitative to the superficial observer." But is it true that the advance of thought in America has been one generation behind that of England? In what departments of thought is that true? Was America behind England in political ideas in 1688, or 1776, or 1832? Has she ever been behind England in social and economic ideals? Did not the great reform epoch of 1832 in England precisely coincide with a similar era in America? The truth is, rather, that it is in the one field of literature, and not in the general progress of thought, that America has conspicuously lagged behind England. And here, it must be admitted that we have imitated the mother country. In the colonial times our literature, like our architecture, was a reproduction in cheaper materials and under harder conditions of the classic style then current in England. Mr. White admits that the whole group of revolutionary poets, Dwight, Barlow, Humphreys, Trumbull were feeble imitators of the Queen Anne men. Dr. Dwight professed to "imitate the manner of *several* eminent British poets!" Franklin repeatedly owned his indebtedness to Defoe and Addison for his ideals of literary manner. Bryant, says our author, is "the real father of American poetry"; but it is doubtful whether if there had never been a Wordsworth there would ever have been a Bryant. Even the very fads of British literature have been imitated here. Take, for instance, the "Annuals" and "Keepsakes" and "Gems" which were so common here just as soon as the fashion had been set in England some fifty years ago.

In fine, then, it was only about half a century ago that any genuinely original power in literature began to show itself in this country; before that time we produced very little deserving the name of literature, and of that little the most was inspired by English originals. This is not, of necessity, as Mr.

White would seem to think, discreditable to the national intellect. The national intellect was turned into other channels, that is all. While, therefore, we have nothing but commendation for the plan of Mr. White's interesting little book, we cannot think he has made good his claim for American literature that it "has developed with admirable freedom, energy, and completeness. . . . . It shows the natural unfolding of intellect freed from Old-World trammels." Of our political institutions these statements would be true; spoken of our literature they seem to the present writer much exaggerated.

C. F. WINCHESTER.

WESLEYAN UNIVERSITY.

An Etymological Dictionary of the German Language.—By FRIEDRICH KLUGE, Professor in the University of Jena. Translated from the Fourth German Edition by John Francis Davis, D. Lit., M. A. New York: Macmillan & Co., 1891, pp. xvi, 446.

Until the appearance of the first German edition of Kluge's dictionary, in 1883, there was the most apparent lack of an etymological dictionary of the German language that was both sufficiently short and comprehensive, and at the same time accurate and in scientific accord with the most advanced stadium of the subject. Kluge's *Etymologisches Wörterbuch* satisfactorily filled all these requirements, and found such favor that three editions were, at short intervals, printed from the same plates. A fourth edition, revised and augmented, was published in 1889, and is the present form of the work.

Kluge's dictionary does not pretend to include the whole existing vocabulary of spoken German, in that it eliminates, as the manifest material of the *Fremdwörterbücher*, all words of recent foreign origin; but it contains the simple form of all older elements, whether original or borrowed, and all compositions which it is necessary definitely to explain. Its accuracy, as has appeared from German criticism, is undoubted. Its etymons, in the case of original Germanic words, are carefully adduced from the whole Germanic branch, with a citation of the original common Germanic root, and, where they are available, from the other allied languages, with a citation of the ultimate root. Non-Germanic words of early importation are also carried back to etymological sources in the same way. In addition to the bare statement of relationship, questions of phonetic correspondence are frequently considered in detail; and accepted etymologies are not seldom discarded from the standpoint of the "neo-grammarians," of whom the author is one of the foremost representatives. Questions of categorization based upon phonetic conditions are concisely stated. The work is, accordingly, not only what it purports to be, a dictionary of etymology, but also to some extent, and particularly where a new point of view is involved, a consideration of phonology as well. One great and lasting value of the work arises from this very fact. Kluge's book is not by any means a compilation simply, but it contains a great mass of new material, either original with the author, as it in many cases is, or sifted out of scattered articles in the *Zeitschriften*, that have not before been available in an easily accessible form. It is, in so far as that work specifically bears upon the German language, an epitome of the most recent investigations in Indo-Germanic philology; and forms a fitting adjunct to Brugmann's "Comparative Grammar," to which, in its way, it is not a whit inferior.

Apart from the question of origin and the ultimate relationship of words—their physiology—this dictionary has, besides, a value quite as great for its treatment of the development of the meanings of words—their psychology. The author's own formulation of this point of view, in an address on "German Etymology," delivered at the *Philologenversammlung* held at Karlsruhe, in 1882, attracted attention: "The aim of etymology is not so much the question of the origin of the word, as of its development and history." The point is an important one, and its incorporation in the plan of the present work differentiates this from other dictionaries, purely etymological, and greatly increases the scope of its usefulness. Changes in the signification of words from the abstract to the concrete, from the general to the special, by transference, or in whatever way, by widening or narrowing the extent of their application, are all carefully worked out. The dictionary is, as a consequence, interesting reading, as well as a storehouse of available material.

The present English translation of Kluge is based upon the fourth German edition, with, the translator says in his preface, the correction of a few errors in the typography of the original. The translator's part has been admirably done and leaves little to be desired. The phraseology in particular is to be commended, in that every possible trace of the hieratic terminology of too many philological works in English, original and translated, has been avoided. There are, however, one or two matters of rendition that might have been improved upon, in themselves apparently of little weight, but important, nevertheless, from their bearing. The best purposes, namely, are plainly to be served by the use in a science of a common terminology; and the science of language has certainly now arrived at the stage where it is possible consistently to bring this about. *Indo-Germanisch*, accordingly, would have been better translated "Indo-Germanic," than "Aryan"; and the specific sense given to the latter in Brugmann, *i. e.*, the branch consisting of the Indian and Iranian groups, could then have been maintained. "Germanic," in the same way, would have been preferable to "Teutonic," simply, of course, in this case, because it better conduces to a homogeneity of terms. This, too, would have been a good opportunity to do away with "East Teutonic," which, although it translates Kluge's *Ostgermanisch*, has been by almost common consent superseded.

The author's introduction, a short, but extremely valuable and suggestive prefatory essay on the history of the German language, finds a place in the translation, as does also the index to Greek, Latin, Italian, French, and English words cited, given together with the German word under which they may be found. The German words throughout have been thoroughly glossed, where necessary, in their different significations, and the corresponding English meaning has also been given in the case of foreign words. In typography and general form the English book is superior to the German.

The work is to be almost unconditionally recommended, not only to students of German, but to those doing historical etymological work in English, Greek, or Latin as well, for by means of the indexes the material in each language is easily and equally available. This translation of Kluge's dictionary, then, is not only valuable from its intrinsic worth as additional subsidia for the scientific study of the German language, but it is important, too, for the correlation that it renders possible between the study of a modern language and the classics. Judiciously used it would make the knowledge on each side available and interdependent, and would tend, in no small degree, to break down the imaginary barrier that is still too often thought to stand between the old and the new.

WILLIAM H. CARPENTER.

COLUMBIA COLLEGE.

A Natural Method of Physical Training: Making Muscle and Reducing Flesh without Dieting or Apparatus.—By EDWIN CHECKLEY. Brooklyn: Wm. C. Bryant & Co., 1890, pp. 152.

The growing popularity of physical culture has given us of late many interesting manuals, but none of greater value to the average lay reader than that by Mr. Checkley, which is already in its seventh edition. Beginning with the statement that most popular systems inculcate physical "straining" rather than physical "training," the author in a few well-written chapters outlines a system of his own, whose chief merit lies in the fact that it is exceedingly simple and does away with all expensive apparatus and infinitely complex details of diet and exercise.

Correct breathing is regarded as the most important element in securing a healthful development. The right carriage of the body, such as to secure the easy and natural play of the organic functions, is emphasized, while "muscle-molding" schemes that have the effect to "lay on" the exterior hard and fast masses of muscle to the detriment of the organic functions, are disparaged. Simple exercises without apparatus are suggested for the training of muscles and joints, and many useful hints are given as to what exercise can and cannot do for the upbuilding and conserving of health and bodily efficiency. The characteristic feature of the book is its advocacy of the most simple rules as regards exercise and diet.

The man who has purchased expensive physical apparatus in the hope of finding health and strength by conscientiously following out complex directions as to its use, but who has become disgusted with the tiresome burden imposed, will feel greatly relieved, on reading these interesting chapters, to discover that by attending to a few plain directions as to carriage of body, walking, breathing, and occasional flexion of important muscles, he can dispense with his complex paraphernalia, and still become a vigorous, healthy, robust person, capable of all ordinary endurance, without an unduly developed biceps and a case-hardened layer of unyielding muscle.

To the teacher of calisthenics who is looking for something novel in the way of muscular movements—"contortions," as Mr. Checkley calls them—to elicit the admiring gaze of lookers on, there will be little in this book to attract. To the lay reader who desires a brief and rational account of the *cui bono* of all the many schemes for muscle-training that are recommended as the necessary condition of a symmetrical bodily development, but who feels that life is too short to attempt to learn the new "science," this book will be a welcome boon.

A. B. P.

Appleton's School Physics: Embracing the results of the most recent researches in the several departments of Natural Philosophy.—Edited by JOHN D. QUACKESSBOS, A. M., M. D., Columbia College. New York: American Book Co., 1891, pp. vi, 544.

This is a text-book designed for use in high schools and academies. It is a thoroughly modern treatise. It is not, what is so often thrown upon the market, an old book with a modern appendix "bringing the subject down to date." The first statements in the discussion of any subject present conceptions that have their birth in the latest discoveries and speculations. An excellent example of this is found in the initial paragraphs on Light.

The treatment of each department gives evidence that it is the work of a teacher; this is apparent in the arrangement of the topics, in the manner of discussion, and in the language and illustrations employed. Every part of the work is characterized by thoroughness. There is no disposition to avoid difficulties. Fundamental principles are made clear by thorough exposition, and so difficulties are mastered rather than evaded. The authors do not give the student a summary of scientific facts and conclusions without showing him the processes and proofs by which these truths are established. It is no book for primary schools; every statement presupposes a student who can think.

The book is conveniently divided into sections containing sufficient material for a lesson. A list of good test questions and problems is found at the close of each chapter. Frequent references furnish the teacher or student with information concerning material and apparatus for experimental purposes.

FREDONIA, N. Y. S. H. ALBRO.

Lessons in Applied Mechanics.—By JAMES H. COTTERILL, F. R. S., and JOHN HENRY SLADE, R. N. London and New York: Macmillan & Co., 1891, pp. xiv, 512.

This is a little book, chiefly intended, apparently, for pupils in technical, manual training, and trade schools. It is largely a paraphrased abridgment of the larger work of the senior author, his *Applied Mechanics* for the higher technical schools. The work is planned by him, and mainly carried out by his old pupil and assistant. The result is one of the best elementary treatises on the subject that has yet appeared. It is full and comparatively symmetrical in its pure mathematics, and, as a work of application, is unsurpassed. The introductory matter is that usually found in such books; but includes, I note, Simpson's rule for measurement of areas, which has come to be important in view of its frequent use in the engineering problems which now find place in these later works. Part I, "The Principle of Work," has a truly scientific form, beginning with kinematics, the science of pure motion, then taking up problems in pure stress, and finally considering problems of energy—the result of the combination of the two preceding elements. The simple machines are studied in Part II, with and without friction; and the direct-acting steam-engine is taken as the type of the whole system of more intricate machinery. This last is studied in all its essential features, including the effects of friction, and of the inertia of its reciprocating parts, and the energy-problems involved in the action of fly-wheels and in its regulation. Dynameters, brakes, and governors are taken up and examined in all their mechanical principles; and well-chosen examples, as in the preceding part of the work, illustrate their action and their computations.

The second part includes also the study of the strength of materials and the applications of the principles deduced, as illustrated in the work of the engineer; while a carefully made collection of experimentally derived data supplies the needed contents for the formulas.

Part III is devoted to hydraulics, and presents the principles of static and dynamic action of fluids, and their illustration in hydraulic machinery, as in overshot and undershot waterwheels and pumps; but omitting turbines.

The book contains many of those modern features of the later works in engineering which have hitherto not appeared in the works of writers unfamiliar with applied mechanics, as actually in application in construction and practical work. The treatment of the steam-engine, for example, includes a discussion of great value, exhibiting the effects of the inertia and kinetic energy of moving parts in modifying the action of the machine, in turning the crank, and thus affecting for good or ill the regularity of its motion as a whole, and its regulation. This book is more nearly up to date in its subject than any work of its class that we have yet seen. It is admirably adapted to its purpose, the instruction of students in schools, especially in such as are preparatory to the great engineering colleges. The book is well made, though a larger type and page would be preferable.

R. H. THURSTON.

SIBLEY COLLEGE, CORNELL UNIVERSITY.

A Treatise on Trigonometry.—By Professor JAMES E. OLIVER, Associate Professor LUCIEN A. WAIT, and Assistant Professor GEORGE W. JONES, of Cornell University. Fourth edition. Ithaca, N. Y.: Published for the Authors, pp. viii, 160.

Logarithmic Tables.—The same—pp. 96.

Trigonometry has passed far beyond its original field and wholly outgrown its name. In all developments, however, the trigonometric functions retain their original character, and so make proper the use of the limited name over the entire subject. The new discussions have not only modified definitions but have made a marked line between elementary and advanced treatment. The *Trigonometry* of the Cornell Professors proposes to give both elementary and advanced discussion. There is grave doubt whether discussions of value only to advanced readers should have place at all in an elementary book; they certainly should not at the cost of full consideration of the elements. The student beginning trigonometry enters a new field; there are new elements, new symbols, new combinations. Definitions must be clearly stated and each relation made distinctly secure. The work before us is in some respects a grave disappointment. The use of linear and polar elements of position as a basis for the definition of trigonometric functions is excellent. But in the text the discussions of rectangular and polar co-ordinates are so placed as to appear ends rather than means, in this field, to a further end. The first edition—also before us—was in this particular much better.

The elementary discussion of the angle is particularly obscure where it should be especially clear. Angle is defined—somewhat awkwardly—by description, as an opening between two intersecting straight lines, one fixed, the other rotating on the point of intersection. The discussion implies that continuous rotations, giving periodically the same positions, make the *same* angle, which is, in fact, one of an indefinite number of angles. To one now first meeting the motion of an angle beyond 360°, there comes a puzzle. Are 30°, 390°, 750°, etc., *different* angles or the same angle? If they are the same angle, why talk about "congruent angles"? If they are different angles, how do they make, as they clearly do, *one opening* and therefore, by the *definition*, one angle?

There is a manifest lack of proportion in the fullness of discussion. Complementary and supplementary angles—definitions of the simplest—are discussed for a full page, while the basic functional relations are stated and demonstrated in less than a half-page. The theorem (4) which establishes the primary relations between trigonometric functions, contains in one statement *eight* distinct propositions. It is followed by eight demonstrations, given as of the one theorem. The relations given in the theorem are not even of one class, but manifestly of three classes: reciprocal, complex, quadrate. The demonstrations are also of three classes: the reciprocal relations are founded directly upon the definitions; the complex require a single algebraic step; the quadrate, a geometric and an algebraic step. Relations and proof are very simple—to one who knows; but to one who is yet unfamiliar even with the functional symbols, there is, to speak mildly, great danger of confusion. Strangely enough, two-thirds of the next page is taken up with a consideration of the double sign coming directly from the quadratic relations and needing but a word to illustrate the interpretation to the student. The relations given in theorem 4 are fundamental; they recur constantly; the student should have clear conception and facile use of them; they should be emphasized by distinct statement. The same tendency to pack into limited space diverse statements is shown elsewhere, though there is no theorem so grossly bad as the one noted. With the disposition to economize space, it is somewhat remarkable that the authors deem it necessary (p. 57) to redemonstrate the proposition of Plane Geometry that "The square of any side of a plane triangle equals the sum of the squares of the other two sides less twice the product of one of these sides into the projection of the other upon it." This is as competent as other propositions used in the text without demonstration.

The treatment of the solution of triangles, both plane and spherical, is much more distinct than the discussion of the theory; though there are throughout examples of a tendency to crowd closely together in some statements and to make minute subdivisions and repetitions in others.

The objections to the text are not a matter of speculation with the writer. He used for two years the earlier edition of this text and was convinced that, despite the recognized mathematical ability of the authors, the forms of statement seriously obscured the subject.

The *Logarithmic Tables* issued for use with the Cornell Trigonometry are admirable. Well arranged, well printed in clear type on good paper, they are worthy of full commendation.

OREN ROOT.

HAMILTON COLLEGE,
CLINTON, N. Y.

University of the State of New York; Regents' Bulletin, No. 5, April, 1891. Albany, N. Y.: University of the State of New York, 1891, pp. 156.

Among all the agencies which are to-day at work elevating the standards of public education, the University of the State of New York holds a prominent place, not only from its unique and far-reaching powers, but from the way in which these powers are exercised. Of all the fruitful projects undertaken by this vigorous institution, it would be difficult to find one more wisely conceived or more admirably executed than the system of examinations conducted by the Regents of the University. The syllabus of these examinations, in its fourth edition, is now issued as Regents' Bulletin, No. 5. The first edition of this work was merely a summary statement of the requirements in the examinations conducted by the University. It was published in 1880 as a pamphlet of twenty-eight pages, and included thirty-six branches; the edition of 1891 is a true syllabus, containing one hundred and fifty-six pages and including fifty-eight subjects. Unlike the first, which was prepared by the Secretary alone, this edition is not only the outgrowth of three previous editions, but is also the result of the combined labors of the Assistant Secretary, the editor, and the many principals and teachers of the schools of the State, to some of whom credit is given by name in the body of the syllabus. These facts are all interesting and significant. The unity and progress which it is the chief aim of this work to secure can be reached only through such co-operation. The important changes, both in the quantity and in the quality of the requirements, which have been made at the suggestion of representative teachers throughout the State, cannot fail greatly to extend the usefulness and increase the influence of the University.

The classification of subjects, as it appears in this syllabus, could not well be improved, and a greater degree of freedom is manifest in the general plan of the examinations. The following plank, which appears in the platform relating to examinations, will give an idea of the spirit of progress which characterizes the entire syllabus. "The aim in all the examinations is to test, as far as practicable, the thought-power of the candidate. Definitions, rules, principles, and laws are of little value without a knowledge of their application." The most radical and most significant change that has been made in accordance with these statements is to be found in the treatment of physics and chemistry. Not only has their time been nearly doubled, but the requirements as to amount of information have been reduced fully one-half. It is refreshing to find that the proper names,—an even score of them,—from Frauenhöffer to Rhumkorff, that studded the chapters devoted to physics in the edition of 1888, have disappeared to a man; and in their stead we find "the motion of the lawn-sprinkler," the "method of supplying cities with water," and "of heating houses by steam." Similar changes have been made in the section on chemistry. In literature, also, there is a like improvement.

On the contrary, it must be urged, as a general criticism, that on very many subjects there is still too much required. The "information fallacy" has a tendency to intrude itself. It seems inherent in examinations that they should tend to test quantity of knowledge and not quality of mind. Whatever tests of thought-power the question papers may prove to be, it remains a fact that in too many cases the syllabus calls for an amount of information inconsistent with the development of the power to think, and even, in some cases, inconsistent with the gaining of a love of study. In some of the sciences and in the requirements for the first year's work in Greek and Latin, the preparation for examination may easily develop into cramming, and into a verbal memorizing, rather than an intelligent making of rules. In literature, also, where, as a result of twenty weeks' study, there is a demand for knowledge about the lives and characters of no less than thirty-three authors, an outline of contemporary history, a study of one special work, and a memorizing of selected passages, there will be a tendency to gain knowledge about literature rather than acquaintance with writings and a love of reading. What does it profit if the child to gain knowledge lose love?

In many cases subjects are prefaced with an introduction stating the end sought and giving helpful suggestions as to the best means of reaching this end. The syllabus thus becomes a practical treatise on methods of teaching. In geometry and in the physical sciences there appear directions for the study of elementary portions of these subjects in the earlier years of school life. Such suggestions are notably absent from the subjects of arithmetic, geography, and literature. There seems to be no good reason why a feature so excellent should not be introduced throughout. The correlation of subjects also receives marked attention. The relation existing between literature and history and between the history and language of different countries is noted, and in science one finds a fruitful conception of unity. But there is no hint that geography is the key to the pedagogic situation at any stage in the life of the pupil, and no reference is made to the relations existing between the fundamental operations of arithmetic.

The most important evidence of progress in principles and methods appears in the wider introduction of the objective method, in the emphasis laid on the study of type-forms, and in the direction to the teacher to begin at the standpoint of the pupil. The use of such expressions as the following will indicate the application of these principles: "Make the pupil familiar with the customs, food, education, language, laws, modes of government, arms and armies, ships and navigation." "Illustrate the laws of physics and chemistry by simple home-made apparatus." "Use the familiar animals of types . . . . illustrative of the classes to which they belong." "Study of the animals and plants to be found near the homes of the pupils." "Practical observation rather than books." In civics and economics, also, though no directions for objective work are given, the examination presupposes that the class has had the guidance of a teacher who knew how to give an interest to the subject by illustrations and exemplifications drawn from the current discussions and events of the times; yet, after all, the section on civics begins with "theories," and that on economics with "definitions."

In neither literature nor geography do we find a suggestion of these methods, although there are "typical forms" in literature and there is such a thing as taking the standpoint of the pupil in geography and psychology. The section on geography, with some relatively unimportant changes, stands as it stood in the earlier editions. Not only is there no reference to the methods of elementary study, but there is no more mention of sand or putty, of methods of map-drawing, or of the necessity of beginning with the things nearest home, and with types in physical geography rather than with the "ordinary school text-book in mathematical and political geography," than if Parker and Frye, not to speak of Ritter, had never written. The subject of psychology is still farther behind the times. The caption is psychology, but the topics dealt with and the method of treatment belong to that abstract, traditional, and metaphysical thing that used to be called "mental philosophy"; that studied mind instead of mental phenomena, discussing the possibility of introspection rather than teaching how to perform the operation; and, to use the words of the syllabus, dealing with "the terms of psychology and the distinctions between them" rather than the powers and activities of the minds of the students themselves, and the significance of this knowledge for personal mental life. It is indeed true, as the syllabus states, that "there is a method of study by which a knowledge of mind and its operations is attainable by the student just as surely as there is a profitable mode by which the natural sciences may be studied by young students," but the method is the same in psychology as in any other natural science. It is to be hoped, also, that the study of the will may occupy a prominent place in the next syllabus. It is a subject practical enough, certainly, to deserve it.

After physics and chemistry the place of honor in the syllabus belongs to the forty pages devoted to the subject of form—study, drawing, and ornament. The excellence of this chapter, no less than its importance, cannot be over-estimated.

In addition to the four years' course, there has been inserted a valuable abstract of Worman's *Analysis of Ornament*, and the *Syllabus* prepared by the late Dr. John W. French,—his last service to the cause of education,—and adopted by the Department of Public Instruction in the State of New York.

In this practical and effective way recognition is given to the necessity of the study, early in the academic course, of "a subject which should be taught in all the elementary schools of the State." Emphasis is laid upon the fact that drawing is a language for the expression of form-ideas.

No apology need be offered for suggesting that the high degree of excellence attained by portions of this syllabus might well characterize it as a whole. The effect of such a work, as it stands, placed in the hands of the progressive schoolmasters of the State, must be to afford a stimulus, a standard, and a guide; to aid in the proper use of the text-book; and, by the topical outlines, the suggestive questions, the list of irregular verbs with their principal parts, the complete list of roots and affixes, and the general topics of history, to supplement the text-book, and to give breadth and freedom to teaching; and, finally, to introduce a spirit of progressive and sympathetic co-operation which will result not in dead uniformity, but in living, organic unity.

WALTER L. HERVEY.

NEW YORK COLLEGE FOR THE TRAINING OF TEACHERS.

A Primer of Ethics.—Edited by BENJAMIN B. COMEGYS. Boston: Ginn & Co., 1891.

This little book is in the main an abridgement of one of Jacob Abbott's Rollo books. It is plain, practical, and, for the most part, wise. The thought is simple, and the sentences easy, though the words used often reach beyond the range occupied by an ordinary child's speech. It abounds in illustrative examples, some of which grow out of the theme, while some are made and added to it, like fruit of wax or plaster hung upon a tree. The book is not, and does not profess to be, a systematic treatise; neither is there any attempt to ground the duties mentioned in it on any fundamental principle, as even a text-book for elementary schools should do—but the counsels given are judicious, and a little child may be profited by their teaching.

JULIUS H. SEELYE.

AMHERST COLLEGE.

Rudimentary Economics.—By GEORGE M. STEELE, LL.D., Principal of Wesleyan Academy, Wilbraham, Mass. Boston and New York: Leach, Shewell & Sanborn, 1890, pp. xvi, 211.

In criticising such a book as this it is necessary to make due allowance for the limitations under which a text-book designed for popular reading and high school study must be written. Originality, for example, in the presentation of new theories is hardly to be expected. Two conditions are chiefly to be looked for—clearness and conciseness of presentation, joined to soundness of thought and accuracy of statement. The first condition of a good popular text-book is fulfilled in this work of Dr. Steele's. Being somewhat simpler and apparently intended for younger minds than Walker's *Elementary Course of Political Economy*, and being better arranged for teaching than Ely's *Political Economy*, it possesses merit.

It will be more interesting to examine the economic views presented. As a protectionist Dr. Steele has given us one of the very few books on that side of the question so prominently before the country. Both sides are presented with fairness, but the leaning of the author toward the views recently expressed in Patten's *Economic Basis of Protection* is not concealed.

Throughout the book, man is recognized as the center, and in the brief discussions of wages, labor organizations, factory legislation, etc., this standpoint is well emphasized. There is often a failure to profit by recent economic writing, as where Mill is quoted, on page 28, "The greater part in value of the wealth now existing in England has been produced within the last twelve months'; thus ignoring Professor Clark's demonstration that only the form of the value, its embodiment, is of such recent creation, the value itself being the product of centuries of effort and abstaining. The notable discussions of the theories of interest and profits, in the economic quarterlies of the past three years, are not made use of as much as one might desire. Thus the wage-fund theory is entirely rejected without attention being called to its substratum of truth, which is that the amount of capital determines the efficiency of labor and so indirectly affects the amount of his wages.

Mr. Carey is frequently quoted, and his position is adopted, that, "As society advances, the laborer's proportion of the joint product of labor and capital tends steadily to increase; the proportion of the capitalist tends steadily to decline; while the quantity assigned to both steadily increases." This is a pure assumption, and quite Atkinsonian. Since the amount of capital is increasing not only faster than labor, but apparently faster than interest falls, it is probable that capital as a whole, in the form of interest and profits and also the share of monopoly in the shape of rent, is increasing faster than wages. Four per cent. interest on $10,000 is greater than six per cent. on $5000.

Railroads are apparently only touched upon once, and then only in three or four lines, wherein their monopoly character is almost entirely denied—a view quite in opposition to the position of specialists like Professors Hadley, Seligman, and Ely, and the German economists.

The author in one place, page 192, indorses Carey's view that "the value of land arises not from the fact that all additions to the population after a certain time must resort to a less productive soil, but from the same facts which constitute a condition of all other value; namely, the labor bestowed upon the commodity." Yet on the next page Dr. Steele says rent is influenced by the fertility of the soil, the difficulty of cultivation, and the situation, while on page 210 he indorses George's explanation of "the unearned increment" as "an increase of wealth no part of which has been created by the owner," but by the labor of "the community as a whole." This inconsistency is not explained in the book.

Despite these things, however, the book has excellent features, such as the discussion of production, luxury, and money, and is written in so pleasant a style that it is fairly well fitted for the class for whom it was written.

EDWARD W. BEMIS.

VANDERBILT UNIVERSITY,
NASHVILLE, TENN.

Elementary Science Lessons : A Systematic Course of Practical Object Lessons.—By W. HEWITT, B. S. London and New York : Longmans, Green & Co., 1890, pp. xii, 115.

This little book contains a preface and an introduction well worth the price of the volume. The purpose of object-lessons is stated to be "the training of the various faculties of the child," "the formation of habits of careful observation, clear reasoning, and exact statements." "The accumulation of useful knowledge is to be regarded as subordinate to the much more important function of the development and training of the mind." "The amount of actual useful information contained in each lesson is as a rule very small, and could be *told* to the class in a few sentences with little trouble, but probably with as little benefit. The children, however, are to be told nothing which they may reasonably be expected to find out for themselves." "The teacher's part will be mainly that of a leader, seeking to concentrate the attention of the children and to prevent the conversation becoming desultory, suggesting lines upon which the examination of the object should proceed, assisting the children by the simple experimental illustrations, and helping them to express themselves in clear and correct language." The book is not intended "to suggest to the teacher matter which he is to communicate to the children," but rather that "about which he is to lead the children to *give* information as the result of thought or observation."

All this is in accord with the best thought of the world, and so far the book is excellent; but when one turns to the subject-matter of the book itself, it is a disappointment. Lesson I is on a sheet of glass, and a review of the whole book shows that it is a sample lesson. Almost anything may be made an interesting and instructive object-lesson in the hands of a teacher who has the right sort of genius for it, and undoubtedly the topic in hand might be so treated; but instead of that it is exceedingly dull. "Children touch glass and ascertain that it is smooth and hard." As if children need to ascertain by observation that which they already know by previous experience, and which they acquired by the best of scientific methods long before they came under the stultifying process called education! In his preface the author says he "can speak from a long experience of science teaching in elementary schools as to the educational value of practical object-lessons, of the character of those sketched in this book"; and one is disposed to add that the children can speak of such lessons as an intolerable bore. We are apt to find such lessons as these outlined by some supervisor for other teachers to carry out, but only those who come daily in contact with the child mind, and have the rare faculty of appreciating what it appreciates, appear to know that such unnecessary observations are quite as distasteful to children as to adults. The only thing in the lesson which could possibly interest children of any age is the bending of glass in a flame, and the teacher is not advised to do this or to have the children do it, but merely to " mention it briefly." The book from beginning to end is a catalogue of terms whose definitions are developed from objects. While it is true that, if a mass of terms must needs be defined in the shortest possible time, this method of cramming them is as good as any other, yet this kind of so-called science teaching is happily becoming obsolete in America.

JOHN F. WOODHULL.

NEW YORK COLLEGE FOR THE TRAINING OF TEACHERS.

Cassell's Map-Building Series. Outline maps prepared by H. O. ARNOLD FORSTER.—London: Cassell & Co., 1890, sets of twelve maps.

The relation of demand and supply was never more clearly attested than by the multiplicity of methods, aids, and devices for teaching geography which immediately followed the assertion, made a few years ago, that no other common school subject was so poorly, so mechanically taught. It would seem to show either that the statement was based upon limited observation or that invention had simply been awaiting its opportunity. Among recent devices Cassell's *Map-Building Series* appeals to us, partly because it is " English, you know," and partly because of its attractive appearance.

It is not easy to discover why the term "map-building" is applied to this device, since the map, when placed in the pupil's hands, is complete save for the omission of names.

The face of the map is divided into squares, each side of which represents ten miles. On the back are tables stating the direction and distances of cities from each other and from a given city; the distance " as the crow flies" ; and the principal railway routes as to direction, termini, and intermediate stations. Knowing the location of one city, by the aid of the squares and tables the pupil can find a required city and write its name beside its symbol on the map. Accuracy depends upon the pupil's liberty to consult or power to remember the tables, and is only assured with one of these maps. Even should the pupil become independent of the tables, he knows the location of cities with reference to squares and not with reference to the contour and relief of the country. Possibly to the adult mind the dots which represent cities are endowed with life and adorned with the grace of architecture, but in the child's mind they will fail to produce the proper image if the device used in teaching diverts the mind from the actual to the symbol.

Schools which deem it necessary or desirable to burden the memory of pupils with the facts indicated, will find that this device imparts an interest to work which in itself is dull.

STATE NORMAL SCHOOL,
TRENTON, N. J.

M. VIRGINIA FOGLE.

IX.

EDUCATION IN FOREIGN PERIODICALS.

A Proposed Training College for Teachers at Oxford.

FROM THE LONDON "SCHOOL GUARDIAN."

The council of the University of Oxford have introduced a statute having for its object the establishment of a day training college, to be attached to the university, for persons under training as teachers in public elementary schools, who will be matriculated as members of the university. There will be eleven delegates for the training of teachers, including the vice-chancellor and proctors, and they will have the power of admitting as members of the day training college such male candidates as shall be qualified for admission under the regulations of the committee of the Privy Council on Education, the number of students to be admitted in one year not to exceed twenty-five. None of the expenses of the delegacy are to be defrayed out of the university funds. The council has introduced this statute in order to enable the university to co-operate with the Education Department in the establishment of the day training colleges for which provision is made in the New Code of regulations issued by the Department. The council of the university, in considering the proposed scheme, have ascertained that the local committee, if constituted, will be able to make such arrangements for the students as will be likely to satisfy the Department. As regards expense, it will be necessary to appoint both a tutor and a normal master, but the £10 payable to the local committee would meet this expenditure. The sum of £25 will be given to each student as a contribution toward his maintenance, and considering that his whole expenses as a non-collegiate student of the university could be met for £60 per annum, the student or his friends would only have to provide £30 annually for the expenses of his training at Oxford. The new statute has been so framed as to insure that the student, while complying with all the regulations of the Educational Department, should be a *bona fide* member of the university, subject to the usual discipline of the university, residing and entering for the university examinations under the same conditions as other members. Three years' residence, for which provision is now made by the Department, will be necessary for a training college student as for all others who wish to take a degree.

EDUCATIONAL REVIEW

OCTOBER, 1891.

I.

THE PLACE OF SCHOOLS OF TECHNOLOGY IN AMERICAN EDUCATION.

Among the vast changes in the spirit and life of our country, in the arts, the industries, the ideas, the aspirations of the American people, which were brought about by, or which coincided with, the great struggle from 1861–65, none is more remarkable than the rapid development of schools of applied science and technology. It is not my purpose to name even the most important of these, or to attempt to divide among them the honor of what they have, as a whole, achieved. I shall confine myself to accounting, as far as I may, for the rapidity with which these schools have spread over the land, and to estimating their place in the educational system of the future.

The nearest and easiest thing to say regarding the growth of scientific and technical schools, since the fortunate conclusion of the civil war, is that the industrial development of the country had reached the point where it had become necessary that the enterprises into which our labor and capital were to be put should be organized and directed with much more of skill and scientific knowledge than had been applied to our earlier efforts at manufactures and transportation; and so, in the fullness of time, scientific and technical schools came. In this view there is much of truth. The vaster enterprises of these later days, the ever increasing possibilities of modern commerce and industry, the intensifying severity of competition due to quickened communication, fast mails, cheap freights, and ocean cables, had indeed created an urgent want for greater technical skill and more highly trained intelligence. The old wasteful ways of dealing with materials, the rule-of-thumb methods of construction, the haphazard administration characteristic of our earlier industrial efforts, could not have been continued without greatly retarding the national development and without irreparable loss in the result. But not, at the time spoken of, had this want become one of which our people were generally conscious; much less had it created a demand for such institutions which would of itself have sufficed to bring them into existence. The establishment of scientific and technical schools in the United States was to constitute a striking instance of the principle that, in some things, supply must create demand.

Economists and people generally are so much accustomed to think of the more usual condition, in which demand creates supply, that they often forget, indeed, to many it never occurs, that there is another large class of cases, and these by far the most important of all, in which the opposite rule obtains. In the lower ranges of life, in matters of clothing, food, and shelter, and indeed in holding on to whatever advances civilization has once fairly and fully made, whether in material or in higher things, the conscious wants of humanity will, in all ordinary cases, suffice to secure the due supply, without any organized public or private effort other than that originating in personal interest. But in all things high and fine, and generally also in every advance which material civilization is to make, there must be a better intelligence than that of the market, which shall apprehend, not what the people want, but what they ought to want. There must be disinterested efforts, on the part of the natural leaders of society, which shall secure, at whatever sacrifice, such a demonstration of the merits and advantages of the yet unknown thing, such a supply of the new good, as shall create the demand for it. It will not be until that want has been fairly and fully wrought into the public consciousness that the supply may thereafter be left to take care of itself.

The American schools of technology illustrate, in an eminent degree, the law of human progress which I have stated. These schools did not come into existence in obedience to a demand for them. They were created through the foresight, the unselfish devotion, the strenuous endeavor, of a few rich men, and of many very poor men, known as professors of mathematics, chemistry, physics, and geology. At the time they came into existence there was a smaller demand for technically trained men than there is to-day, when for twenty-five years these schools have been pouring out their hundreds of graduates annually. That demand has been created by first furnishing the supply; by showing what young men properly educated and highly trained can do in organizing and directing the forces of American industry.

That these schools—in spite of the fact that they had everything to do at once and little to do it with; in spite of the fact that they had no traditions to govern them, and had, indeed, the whole philosophy of their subject to evoke, *a priori;* in spite of general public indifference and even of much contempt—have done their work exceedingly well, even from the first, is fairly implied in the foregoing statement. It is truly remarkable that, with so little to go by and so much to do, all at once, out of such scanty means, there should have been so little waste of effort, so little done injudiciously, so few steps taken that needed to be retraced.

Credit should also be given to the Congress of the United States for the act which was passed July 2, 1862, under the enlightened leadership of the Hon. Justin S. Morrill, of Vermont, making generous provision for the establishment, in the several States, of colleges of agriculture and the mechanic arts. Most of this provision was, it is true, devoted to the creation of agricultural schools, regarding which the scope of this paper does not require me to speak; and, indeed, regarding which I should scarcely presume to express an opinion; yet the part which was assigned to the promotion of the mechanic arts proved to be a most valuable and timely re-enforcement of the American system of technological schools.

But no one who thoroughly believes in the mission of schools of this class can be content merely to assert that the full time had come in the economic evolution of the nation when such schools were imperatively needed for the promotion of our industries, and that the institutions thus called into being have done this, their primary work, with triumphant success. I go far beyond this, and assert for these schools that they have come to form a most important part of the proper educational system of the country, and that they are to-day doing a work in the intellectual development of our people which is not surpassed, if indeed it be equaled, by that of the classical colleges. No statement less broad and strong than this would begin to do justice to the view I take of what these schools are now doing, and are in an increasing measure to do for the manhood and citizenship of the country. I believe that in the schools of applied science and technology, as they are carried on to-day in the United States,—involving the thorough and most scholarly study of principles directed immediately upon useful arts, and rising, in their higher grades, into original investigation and research,—is to be found almost the perfection of education for young men. Too long have we submitted to be considered as furnishing something which is, indeed, more immediately and practically useful than a so-called liberal education, but which is, after all, less noble and fine. Too long have our schools of applied science and technology been popularly regarded as affording an inferior substitute for classical colleges to those who could not afford to go to college, then take a course in a medical or law school, and then wait for professional practice. Too long have the graduates of such schools been spoken of as though they had acquired the arts of livelihood at some sacrifice of mental development, intellectual culture, and grace of life. For me, if I did not believe that the graduates of the institution over which I have the honor to preside were better educated men, in all which the term educated man implies, than the average graduate of the ordinary college, I would not consent to hold my position for another day. It is true that something of form and style may be sacrificed in the earnest, direct, and laborious endeavors of the student of science; but that all the essentials of intellect and character are less fully or less happily achieved through such a course of study, let no man, connected with such an institution, for a moment concede!

That mind and manhood alike are served in a pre-eminent degree by the systematic study of chemistry, physics, and natural history has passed beyond dispute. The haste with which the colleges themselves are throwing over many of their traditional subjects to make room for these comparatively new studies, shows how general has become the appreciation of the virtue of these, when combined with laboratory methods, as means of intellectual and moral training.

I have spoken of the characteristic studies of the new schools as the best of all available means of both moral and intellectual training. I believe this claim to be none too broad.

I. The sincerity of purpose and the intellectual honesty which are bred in the laboratory of chemistry and physics stand in strong contrast with the dangerous tendencies to plausibility, sophistry, casuistry, and self-delusion which so insidiously beset the pursuit of metaphysics, dialectics, and rhetoric, according to the traditions of the schools. Much of the training given in college in my boyhood was, it is not too much to say, directed straight upon the arts which go to make the worse appear the better reason. It was always an added feather in the cap of the young disputant that he had won a debate in a cause in which he did not believe. Surely, in these more enlightened days, it is not needful to say that this is perilous practice, if, indeed, it is not always and necessarily pernicious. Even where the element of purposed and boasted self-stultification was absent, there was a dangerous and a mischievous exaltation of the form above the substance of the student's work, which made it better to be brilliant than to be sound.

Contrast with this the moral and intellectual influence of the studies and exercises I am considering. The student of chemistry or physics would scarcely know how to defend a thesis which he did not himself believe. In that dangerous art he has had no practice. The only success he has hoped for has been to be right. The only failure he has had to fear was to be wrong. To be brilliant in error only heightened the failure, making it the more conspicuous and ludicrous. How wholesome to the mind and heart of the pupil is such a regimen!

II. Again, in addition to the graces of sincerity and intellectual honesty, which are the proper traits of physical and natural science, altogether aside, too, from any future technical uses to which the arts or the information acquired may be put, there is great virtue, as training for practical work in life, of whatever kind, in whatever sphere, to be found in the objective study of concrete things, which so largely makes up the curriculum of the scientific school.

III. Still another advantage which I claim for the characteristic studies of the new schools is that, in a very large degree, they dispense with the system of examinations, which has become the curse of modern education. The recent remarkable outburst in England, from educators of every name and class, against that system, justifies the strong terms I have used. It is admitted on all sides to be a problem of the greatest difficulty, so to adjust the scheme of examinations that they shall not largely neutralize the good effects of sincere, straightforward study.

So far has cramming been carried in English universities, and even in our own colleges, that examinations have largely ceased to be a test of the scholar's attainments, much more of his real proficiency in his studies. Students who have a marked facility in this sort of thing acquire, in time, the faculty of passing creditably examinations on matters of which they know almost nothing. By steadily cramming for a few days and nights, under artful coaches, who know the professors' weaknesses and fads, a young man, exceptionally expert, can "get up" a subject, of which he would be troubled, the morning after examination, to give an intelligible account.

A special organ—the examination organ—becomes developed, which is as specific as the water-sacks attached to the stomach of a camel, intended only to carry a certain amount of refreshment over a very dry place for a very short time. Indeed, the comparison fails to do justice to its subject. The examination organ is at once as specific and as external as the pouch of a kangaroo.

From this serious difficulty, schools of applied science and technology are, by the very nature of the case, largely freed. Indeed, the inapplicability of the scheme of examination to these studies has even been made an argument against their introduction into universities. Prof. Josiah Parsons Cooke, in addressing a body of students at Harvard, recently said: "When advocating, in our mother university of Cambridge, in Old England, the claims of scientific culture, I was pushed with an argument which had very great weight with the eminent English scholars present, and which, you will be surprised to learn, was regarded as fatal to the success of the natural science *triposes* then under debate. The argument was that the experimental sciences could not be made the subjects of competitive examinations."

It is not true that chemistry and physics cannot be made the subject of examinations after their kind; but it is true that, under competent teachers of these sciences, examinations have far less of the character of a cram and far more of the character of a test of ability to do work. Moreover, in such a scheme of instruction, as a whole, examinations perform a much less important part; while the daily and weekly exercises in the laboratory become continually of more and more account as a means of ascertaining the scholar's real progress. In this, the schools of applied science and technology comply with the demand of modern thought in pedagogics. In no department of life more than in education is the scripture precept of authority: Let the dead bury its dead. The best examination which a student can pass is to show his ability to *do the next thing*. If he can pass this examination successfully, the teacher need give little thought to what has gone before.

IV. The last of the advantages attendant on scientific instruction which I shall enumerate, though the list might be still further extended, is found in a better relation between teacher and pupil. I would not willingly be guilty of exaggeration in this matter. With a really great and gifted teacher, the attitude of the scholar will alway be that of respect and admiration, whether with or without affection and personal intimacy. But it cannot be denied that, in the traditional college, with the traditional subjects of instruction, the relation in question is likely to be less than a happy one. On the one side, there is apt to be an undue assumption of knowledge, a tendency to dogmatism, and a too peremptory way of dealing with the pupil's doubts and difficulties. On the other side, there is apt to be something of the tone of resistance, if not of resentment; a disposition to escape the teacher's scrutiny, if not to get around him with the petty tricks of the recitation-room.

It would be foolish to assume that there is any virtue in the natural and physical sciences which will overcome the faults or deficiencies of mind and heart that are found in some teachers. There are men who will be priggish, pompous, and pretentious in doing anything. But there is a wonderful virtue in scientific studies for bringing teacher and scholar together in their work in a most simple, natural, and affectionate relation. He is the most successful teacher of science who puts himself in the attitude of discovering truth with his pupil, and of hunting with him for the object of their common search. Moreover, the very closeness of the contact in the laboratory of chemistry, physics, or mechanics, is such as to cause a continuous, insensible discharge of the electricity generated by the necessarily strict requirements of study and discipline, and thus to maintain the friendly relations of teacher and pupil, unbroken by those storms which sometimes gather and burst in colleges where the teacher sits, buttoned-up, on a platform behind his desk, and lectures to his pupils from the chair of authority.

But it may be said: Conceding all that may be claimed for the purely educational advantages of the scientific studies which run through the curriculum of the technological schools, why may not all these advantages be equally obtained by the student of the traditional college, and even to better effect, since there he may secure the pure gold of truth freed from the alloy of baser metal, by which term the critic would designate the useful, practical applications of science. It is here that it behooves me to take issue, most directly and aggressively, with those who assert for the old-fashioned colleges an educational virtue superior to that of the schools which I represent. It is of the very essence of my case that the directness and immediateness of application to which the studies of our pupils are subject, under their very eyes and at their very hands, constitutes a tremendous educational force, securing a closeness and continuity of attention on the part of the pupil, an earnestness of effort, a zeal and enthusiasm of work which it is utterly beyond the power of the teacher of classics or philosophy to arouse, except in the case of gifted students. If proof of this upon a large scale be needed, it is enough to refer to the well-known fact that law schools and medical schools invariably command the energies of their pupils in a far higher degree than do the colleges; and that hosts of young men who have idled and dawdled away the four years nominally devoted to classics and philosophy, throw themselves with splendid enthusiasm into their professional studies when once they, for the first time, see upon what ends their efforts are directed, and how their energy and application are to promote their happiness and usefulness in life.

Even in the case of those young men who need no such incentive to secure their faithful attention and earnest endeavor, I hold that schools of applied science and technology possess a distinct advantage, in that their students learn the truths of science in a somewhat different way, and, as the result, know them somewhat better than do those who study these truths, no matter how diligently, without immediate, direct, and constant reference to their applications.

Without referring further to the limitations and defects inherent in all academic systems of recitation and examination, I believe it to be true that the man who, in studying mathematics, for example, has only to look forward to a recitation to-morrow and an examination two weeks or two months hence, applies himself to the subject necessarily in a different spirit, and also necessarily with an inferior result, in contrast with the man who, as he acquires his mathematics, continually puts it to use day by day in the laboratory of physics, mechanics, hydraulics, or steam engineering.

For these reasons I must decline to accept the characterization of the technical applications of science as the alloy which debases the pure gold of truth. I look upon them, rather, as the tough, elastic bow, which sends the keen shaft to its mark. And, be it remembered, zeal and enthusiasm of work are not to be valued merely because, or merely as, they secure directness of attention, continuity of application, and sustained endeavor. In themselves, of themselves, they are, in a high sense, an educational force, telling immediately and telling powerfully upon intellect and character, contributing importantly to build up mental and moral substance firmly and healthily.

A great deal more might be said in comparison of the influence of scientific teaching, as carried on in the schools of applied science and technology, with the influence of the traditional, or of the more modern, modified, curriculum of the classical colleges ; but perhaps enough has been said to justify the assertion that the former class of institutions are just as truly educational as the latter. Here I am content to rest my case. This conceded, let the youth of the land seek the one or the other kind of school, according to their individual tastes, predilections, and plans for life. I am far from being so bigoted as to suggest that there is not room enough in the educational system of the future for all the institutions of the elder type which have achieved for themselves a name in letters and philosophy ; which have, with pains inexpressible, wrought out their own problems and created their own constituencies ; and each of which has a host of eager, devoted alumni, ever turning gratefully to the halls in which they were nurtured, and delighting to give to the old college the fruit of their labors and the fruit of their loins. But I confidently look to see a largely disproportionate number of the new institutions which shall from time to time come into being, built essentially upon the plan which has achieved such prodigious successes during the quarter century now closing. Doubtless, the present general scheme of the schools of technology will itself undergo considerable modification, alike from the results of added experience, from larger means, and from the infusion of a wiser and more generous spirit. Doubtless, more of the economic, historical, and philosophical studies will be introduced, to supplement, by their liberalizing tendencies, the work of the sciences in making the pupils exact and strong. Possibly, some ultimate form for institutions of the higher learning may yet be developed, which shall embody much of both the modern school of technology and the old-fashioned college, with, perhaps, something taken from neither, but originating in the larger, fuller, riper life of a happier and richer future.

FRANCIS A. WALKER.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
BOSTON, MASS.

II.

AMERICAN PIONEERS OF UNIVERSITY EXTENSION.

The term University Extension is comparatively new in this country, but the thing itself is old. As early as 1808 a course of popular lectures in chemistry was given by Professor Benjamin Silliman (1779–1864), of Yale College, for the benefit of a class of ladies and gentlemen in New Haven. The class met in the college laboratory, and the lectures were accompanied by experiments. "This course," said Professor Silliman in his reminiscences, "was the opening of a series of labors performed many years afterward, with popular audiences, often in large assemblies, and sometimes in distant cities." College and university lectures for New Haven people have been continued, in varying forms, down to the present day.

The idea of instructive courses in natural science was extended by Professor Silliman from his coeducational class to the mechanics of New Haven in the years 1831–33. In a letter to the New York *Times*, March 22, 1891, a writer claims priority of University Extension for old Yale. He says that about 1828 Mr. James Brewster, a leading citizen of New Haven, erected a large building called Franklin Hall, at the corner of Church and Crown Streets, for the purpose of disseminating scientific knowledge among people not connected with the college. Mr. Brewster had previously interested himself in the development of a Mechanics' Institute, which, it is said, still exists under another name in New Haven. Professor George P. Fisher, in his "Life of Benjamin Silliman" (ii: 326–327), quotes a letter from Mr. Brewster to Professor Dana, which establishes a strong case for Yale College Extension, fifty years ago: "Professor Silliman ever evinced a deep feeling of interest in the moral and intellectual improvement of the mass of the people. Prompted by his encouragement, I erected Franklin Hall for the purpose of providing instruction in the elements of mechanical science to those who could not attend lectures in the daytime. He assisted me in obtaining the means to illustrate the experiments to be made, and introduced me to his assistant in Yale College, Mr. Charles U. Shepard [afterward of Amherst College], who assumed the position of curator of Franklin Hall. Professor Silliman and Professor Olmsted gave courses of lectures to the people of this city. The beneficial effects were manifest by the erection of steam-engines, and the perfecting of machinery, greatly aiding in the development of mechanical skill in its application to the useful arts. These benefits have long been manifest in all departments of business. *This was the first time, I believe, that college professors had gone out to lecture upon natural and mechanical science.*"

A further extension of influence by Professor Silliman occurred in 1834, when he began to lecture outside of New Haven. His first course was given in Hartford in the lecture-room of the Centre Church, upon the subject of geology. The lectures were attended by three or four hundred of the most intelligent citizens of that town and were well illustrated by drawings and geological specimens. Every morning the professor devoted an extra hour in the lecture-room to a conference with persons who wished to see his specimens and hear additional explanations. This was an anticipation of the modern "class," or conference, in connection with University Extension lectures. From New Haven and Hartford, Professor Silliman's public-spirited work was extended, in 1834–35, to Lowell, Salem, and Boston.

In the Athens of America, an introductory lecture, like that of Professor Stuart, of Cambridge, when he captivated the English workingmen at Crewe, was given upon the subject of meteors: "A large and brilliant audience was before me; much larger than any that I had ever addressed. I was awed," adds the Yale professor, "but not abashed." Silliman's first lecture to the Bostonians in 1835, like Stuart's to the English workingman in 1867, was a phenomenal success. Mr. William J. Loring immediately announced, on behalf of the Society for Promoting Useful Knowledge, a systematic course on geology. "This course," says Silliman in his reminiscences, "was my first great success, both as regards reputation and remuneration." The subscriptions yielded $2000. There was an afternoon and an evening course. Both were thronged. "The audience is not surpassed in numbers and intelligence by the assemblies of the Royal Institution in London." Mr. Abbott Lawrence told the lecturer that no man had ever drawn together in Boston such audiences, both for number and character. Returning home, Silliman naïvely rejoiced that he has been permitted to sustain the honor of his college. After "six anxious years" of public lecturing in Boston, he is still deeply impressed with his responsibility for the honor of Yale College, the faculty of which had urged him forward in this public work. He rejoices that he has been successful in making the subjects on which he had spoken intelligible and attractive, without diminishing the dignity of science or neglecting Yale College. President Woolsey once said: "There were, I believe, in the universities of the Middle Ages, orators annually appointed who represented their communities on public occasions. He [Silliman], in his prime, was our standing orator, the principal medium between those who dwelt in the academic shade and the great public."

The Yale professor lectured in Nantucket in 1835. In 1836 he gave a geological course in New York to many of the first people of the city and to what he called "a solid mass of intelligence from the middle classes of society." In 1838, after a second course in Boston, he was consulted by Mr. John A. Lowell regarding the best mode of organizing and equipping the Lowell Institute. He was engaged to give the opening course of lectures on geology in that People's University of Boston. By special arrangement with Mr. Lowell, Professor Silliman gave four courses of scientific lectures upon geology and chemistry, extending through four winters. Public interest continued unabated. The Lowell Institute lectures, being generously endowed, were made free to the public. There were as many as ten thousand applications each season for tickets to hear Silliman. He regarded it as the most arduous scientific engagement, and at the same time as the greatest honor of his life, to give the introductory courses in such a splendid institute as that of John Lowell, who had completed his will on the ruins of Thebes. Edward Everett, Governor of Massachusetts at the time the Lowell Institute was opened, said, "The few sentences, penned with a tired hand by our fellow-citizen on the top of a palace of the Pharaohs, will do more for human improvement than, for aught that appears, was done by all that gloomy dynasty that ever reigned."

The impulse to higher popular education, given first through the Franklin Institute of New Haven, and afterward through the Lowell Institute in Boston, was extended by Professor Silliman to distant cities in the South and West, to Pittsburgh, Baltimore, New Orleans, Mobile, Natchez, and St. Louis. Almost everywhere Yale men were the organizing influences that made these local academic lectures possible in days before University Extension was heard of. Professor Silliman continued this public educational work for a quarter of a century, from 1834 to 1859, from his fifty-fifth to his eightieth year. At the close of this remarkable experience he said, "I conceive that in no period of my life have my efforts been more useful, both to my country and my family; and as regards professional labors, there is no part of my career which I reflect upon with more satisfaction." Joseph Henry, Secretary of the Smithsonian Institution, said that Silliman "was the first to introduce in this country public lectures illustrated by experiments on a scale of magnitude and of a character to interest a popular audience; and his success in this enterprise was such as to give an impulse not yet exhausted to a means of adult instruction which, though it has been abused, is well calculated, under proper regulation, to effect much social and personal good."

The career of Professor Silliman as a public lecturer was nearly synchronous with the rise of American lyceums, through which the influence of college educated men made itself widely and deeply felt upon the American people. Dr. William E. Channing (1780–1842), writing in 1836, said in praise of lyceums: "I have long seen with much satisfaction the diffusion through our country of institutions for the intellectual culture of the people. I have rejoiced in the establishment of lyceums and popular lectures, and I feel that every one is bound to do what he can to forward these good works. By this I do not mean that I consider such institutions, in the present form, as fitted to meet all our wants. The lectures are too disconnected, and too generally intended for mere amusement, to stir up the minds of the hearers to any strong and enduring activity. But we must not despise the day of small things. A lyceum, or young men's association, though liable to the charge of giving superficial knowledge, is still a promise, a harbinger, of something higher. It is a sign that the people are beginning to hunger for more refined pleasure and increasing knowledge. It shows that intellectual life is at work and spreading through the community. Such an omen I hail with joy."[1]

Two of the most highly developed types of city lyceums, the Lowell Institute in Boston and the Peabody Institute[2] in Baltimore, both founded by Massachusetts men, still flourish with ever-increasing usefulness. While other means of higher popular education are now springing into vigorous life in the Pratt Institute of Brooklyn, the Drexel Institute of Philadelphia, the Metropolitan Museum and the American Museum of Natural History in Central Park, New York, and in similar institutions elsewhere, it should never be forgotten that this country has already passed through a remarkable phase of higher popular education by lyceum lectures of no mean order.

[1] Memoir of Channing, vol. iii, 87.

[2] The Peabody Institute, of Baltimore, offers annually to the public thirty superior lectures upon literary, historical, and scientific subjects at the slight charge of $1.50 for the entire course. During the winter of 1890–91, Mr. Richard G. Moulton, the English University Extension lecturer, gave two courses before this Baltimore lyceum.

This old lyceum system was fostered by such men as Daniel Webster, Dr. W. E. Channing,[3] Edward Everett, Ralph Waldo Emerson, Theodore Parker, E. H. Chapin, Horace Mann, Charles Sumner, Thomas Starr King, Wendell Phillips, John B. Gough, Henry Ward Beecher, and George William Curtis. It developed at least one generation of noble orators and patriotic leaders. It has left to this day high standards of public speaking in America. It contributed in no small degree to the rise of the abolition and temperance parties in American politics. Its intellectual and moral influence is still moving on in the West and the New South, where old-fashioned oratory lingers and where the Chautauqua Summer Assemblies are at once a curious survival and an edifying combination of the camp-meeting, or religious folkmote, with the old lyceum idea of popular education by local lectures. College and University men are now everywhere at work in these summer assemblies. Indeed, some of our American institutions of learning have long been encouraging summer schools upon their own academic premises. For example, Harvard,[4] which first (1873) developed the American summer school of natural science, has now a great variety of summer courses; so have the Universities of Virginia, Indiana, Wisconsin, and many other State institutions.

It is no secret that the summer schools of Oxford and Cambridge were suggested by American experience. It is well known that the idea of English Home Reading Circles, and of a National Home Reading Union, were "consciously borrowed" from Chautauqua. While Americans are now wisely introducing from England her well developed methods of University Extension, it is not improper to point out the above facts and to observe that, for nearly a century, each of the two countries has been working out, in its own way, the problems of elementary and higher education for the people. In our eagerness for public improvement, let us not ignore our own educational history, nor forget that we have long had in this country certain blessings of our own, some of which England is just acquiring, namely, free common schools and the true university spirit of teaching and research.

---

[3] Channing's lectures on "Self Culture" (Works, ii, 349–411) and on "The Elevation of the Laboring Classes (v, 153–230) were given to the mechanics and apprentices of Boston in 1838 and 1840.

[4] The Harvard faculty have voted that work done in their summer schools may, with the consent of the various departments, be counted as regular work toward the degree of A. B.

In a letter written in 1835 by Dr. William E. Channing to Josiah Quincy, President of Harvard University, there is a remarkable anticipation of the essential idea of University Extension: "The education of the people seems to me more and more to be the object to which the college should be directed. This institution has always existed, and exists now, for the people. It trains young men, not so much for themselves, as that they may be qualified to render services to the community; and perhaps they render no higher service than by spreading their own intelligence and giving a higher tone to the public mind. Cannot the college do more for this end? I hope it may. If it can furnish a course of philosophical instruction, which can be pursued by a greater number than now pass through college; if it can extend the demand for this higher education by supplying its means, and if it can give a rank to those who enjoy this advantage, it will render inestimable service to the community.

"Perhaps the most important inquiry for the friends of the college is, How can it become a popular institution, an object of public interest, without narrowing at all its present course of instruction? Its well being requires that the community should look to it as their friend and benefactor. I do not, however, think so much of the prosperity of the college, in the suggestions now made, as I do of the general improvement of the people. Popular education is a more important interest than any particular institution, involving, as it does, the religious and political as well as intellectual good of men. The progress of society can hardly be aided more than by bringing greater and greater numbers under the influence of moral and philosophical instruction. I wish that the College may take an active part in this great work. It has an extensive apparatus of means. Can it not render them more productive?"[5]

If one should attempt to investigate the lines of University Extension that have gone out, since the days of Channing, from Harvard, in graduate or professional ways, for the higher education of the American people, he would enter a boundless field of inquiry. It would not be difficult to show that the popular influence of that institution has widened with every decade. Without discussing here the part which Harvard has played in the development of school and college education, and in the lecture courses of Boston and of the country at large, I note in passing that a system of outside lectureships was inaugurated at Harvard, for the benefit of the university and the people of Cambridge, at the very beginning of President Eliot's administration in 1869. Distinguished specialists were invited to give public lectures under the auspices of the university. Among these courses were Dr. Samuel Eliot's upon "The History of the Nineteenth Century"; Ralph Waldo Emerson's upon "The Natural History of the Intellect"; W. D. Howells's on "New Italian Literature"; John Fiske's on "Positive Philosophy"; and many others. The system was not altogether a success at Harvard. President Eliot, in a public address in Baltimore, February 22, 1878, said: "I have seen the results of this plan at Harvard, where they [short lecture courses] were kept up for some time, but I do not consider them very profitable. The result, as I observed it, was that they encouraged short, detached work, not that year by year."[6] This is undoubtedly the defect of all such courses, unless duly coordinated with private reading or regular class instruction.

The Johns Hopkins University, from its very beginning in 1876, has offered continuous and systematic courses of public lectures, often as many as twenty in a course,—with a printed syllabus and bibliography,—to Baltimore audiences, ranging from 200 to 700 hearers. Without employing any characteristic name for its missionary or extension work, at home or

[5] Memoir of Channing, vol. iii, pp. 84–85.

[6] Baltimore *Evening Bulletin*, February 23, 1878.

abroad, the institution has been actively engaged for the past fifteen years in widening its usefulness. The system of public lectures, comprising a great variety of subjects and methods of treatment, has been continued with increasing success down to the present time. Class courses have been provided for school teachers; special courses for special students; for lawyers, physicians, clergymen, bankers, business men, and practical workers in city charities. Public readings have been given in Homer, Dante, Chaucer, and Shakespeare. Lectures on poetry, art, and archæology, and many other courses of public instruction, often with a text-book and lists of good authorities, have been welcomed by cultivated people in Baltimore.

Seminary exercises or conferences in American history, for the joint benefit of young lawyers from the city and Hopkins students, were begun in the library of the Maryland Historical Society in 1876, and were continued in a class-room at the Peabody Institute in 1881. Extended courses of public lectures were given under university auspices at the Peabody Institute by Edmund Gosse and Professor Corson in 1885, by Professor Lanciani in 1887, and Professor Andrew D. White in 1888. In connection with Professor White's lectures on the French Revolution, a printed syllabus was used. Class courses in natural science, with elaborate experiments, were early conducted at the Peabody Institute, by individual Hopkins professors, for classes of young ladies from Baltimore private schools.

In the fall of 1879, through the exertions of the Rev. J. Wynne Jones, of East Baltimore, was organized the Workingmen's Institute of Canton, an industrial district with a busy population of four or five thousand laborers, employed in iron works, copper works, oyster packing, etc. Mr. Jones had been impressed with the story of Dr. Channing's lectures to workingmen (1838–40), and with the good example of the Workingmen's College in London (1854).

A committee representing the different industries of Canton was appointed to call upon President Gilman and invite him to deliver the opening lecture. This was promptly done. Through the efficient co-operation of Mr. N. Murray, of the Johns Hopkins Press, who became the secretary of the institute, a course of twelve "Lectures for the People" was arranged for the winter season of 1879–80. In the opening lecture President Gilman explained the character of the proposed course, and suggested possible lines of development for the institute: (1) lectures, relieved by stereopticon illustrations and good music; (2) a local reading-room, with periodicals and illustrated journals; (3) a circulating library; (4) supplementary evening classes, with lessons in drawing, and the keeping of accounts, economy, co-operation, and the principles of business. He suggested also the cultivation of flowers indoors, in yards and windows, as adding much to the pleasures of city life, with occasional exhibitions to stimulate rivalry. He expressed the belief that four or five such institutes as that at Canton might thrive in Baltimore. Many of these suggestions have since been carried out.

Among other university lecturers at Canton, from 1879 to 1881, were Professor H. N. Martin on "Some Uses of Plants"; Professor Remsen on (1) "The Air We Breathe" and (2) "The Light We Use"; and Dr. W. W. Jacques, now electrician of the Bell Telephone Company, on "Electricity," illustrated by experiments. Literary as well as scientific lectures were given. Professor J. J. Sylvester, one of the original lecturers in the Workingmen's College at London, and now professor of mathematics at Oxford, read some of his metrical translations from Schiller; Professor Albert S. Cook, now of Yale University, lectured on the life and writings of Shakespeare; and Dr. H. B. Adams gave an illustrated talk on Venice and the beginnings of modern commerce. Dr. S. F. Clarke, now of Williams College, illustrated the physical geography and political history of the United States by beautiful maps and charts. Mr. C. L. Woodworth, then a teacher of elocution at the university, delighted his audience by dramatic and humorous readings. Vocal and instrumental concerts were occasionally given by the best available talent in the city. A local reading-room was opened at Canton and flourished for some years in connection with a circulating library.

The lecture courses at the Workingmen's Institute in Canton, in East Baltimore, led directly to another interesting pioneer experiment. In 1882, a course of four lectures on biology was given by instructors in the biological department of the university to the employees of the Baltimore and Ohio Railroad, and to their wives and daughters. This course was supported by the late John W. Garrett, president of the Baltimore and Ohio Railroad, who paid the necessary expenses, and published—for free distribution among his employees—the four lectures given by the instructors, in a neat pamphlet of ninety-eight pages, with illustrations.[7] The subjects of the lectures were as follows: (1) "How Skulls and Backbones are Built," by Professor H. Newell Martin; (2) "How we Move," by Dr. Henry Sewell; (3) "On Fermentation," by Dr. William T. Sedgwick; (4) "Some Curious Kinds of Animal Locomotion," by Dr. William K. Brooks.

All the above work was in one sense University Extension, but it was never called by that name. M. Jourdain, in Molière's comedy "Le Bourgeois Gentilhomme," after taking a private lesson, found to his surprise that he had been talking prose all his life. Perhaps our American colleges will discover some day that they have all been engaged in University Extension without knowing it.

HERBERT B. ADAMS.

JOHNS HOPKINS UNIVERSITY,
BALTIMORE, MD.

---

[7] Baltimore: Friedenwald, 1882

III.

IMPRESSIONS FROM GERMAN SCHOOLS.

I am frequently asked what interested me most in my recent visit to the schools of Germany, and I invariably reply, "The teacher." The place which the teacher has made for himself in the educational system of Germany is certainly most impressive.

This place of responsibility and influence is not newly acquired. It is an inheritance from the past; a transmission of powers won by the courage, zeal, and intellectual strength of the teachers of three centuries. Beginning with the Reformation,—the time from which the present school system of Germany dates,—the teacher has filled a prominent place in all educational reforms. Witness the work of Luther, Erasmus, and Melancthon; of Trotzendorf, Wolf and Sturm; of Ratich, Comenius and Pestalozzi; and of a host of others, not only in promulgating new philosophies and methods of teaching, but in putting into practice new courses of study, in calling out for education the active interest of princes and people, and, wherever it was necessary, in shaping legislation relating to education both high and low. It is this inheritance of influence in educational affairs into which the German teacher of to-day has come, and most worthily, as I believe, does he use it and keep it.

He does not wait for writers of occasional and sensational articles to shape public opinion—writers whose criticisms of the schools rest on no knowledge of their condition and whose conception of their needs has not the basis of philosophy or experience. Neither does he allow newly-fledged members of school boards to initiate schemes of reform, which are meant to show their ability as reformers and to advertise their fitness for political preferment. The German teacher does not take his cue from such men, nor does he wait to take his cue from anybody. He prefers to have the first as well as last word in all questions of reform—whether it be in methods, programmes, or organization. To him belongs almost exclusively the privilege of educating the public in school affairs through the public press. He uses professional association meetings, of which there are many, in discussing questions of reform ; and he exercises the right of petition to the government all the more readily, because he knows that his petition will be heard.

The present notable measures of reform of higher education had their rise in associations of teachers who formulated their opinions in a monster petition of over twenty thousand signers to the Prussian Diet two years ago. Whether it was this petition which caused the appointment of the recent commission in Prussia, it is hard to say ; yet there can be no doubt that the schoolmasters themselves began the discussion of the questions considered in the conference of last December, and the government's confidence in their ability to pass judgment upon the subjects presented was shown in the large number of school men appointed to serve on the commission.

The influence of the teachers in inaugurating reforms and in guiding legislation is due partly to the fact that they are, upon main issues of administration, clear and united, partly because they insist upon being heard, and partly because their action is pointed and systematic. I well remember the earnestness and point of a discussion carried on by a village association in Southern Germany. The association consisted of eight men—all the teachers of the town. The subject was manual training. Two or three meetings had been held previously, and the conclusions of the association were carefully noted in a series of statements, after being discussed and voted upon. These conclusions were to be sent to a higher body, which was to formulate all conclusions received, and print them in what is called a Year Book. Who can doubt that conclusions thus reached would and should have great weight in the councils of the nation ?

Comparing the teachers' influence in Germany and in our own country, I am painfully impressed with the difference. In this country not only do teachers fail to make themselves felt, as they should be felt, in certain features of school legislation, but they frequently are obliged to give way to the politician in matters purely professional. What is the reason of this apparent want of influence on their part? We may attribute the prominence of non-professional leadership in educational affairs to our peculiar form of government. But is that the whole cause? Have the teachers of America asserted themselves as constantly and persistently as they should? Or, in asserting themselves, have they had the scholarship and professional training necessary to win the respect of intelligent men and to command attention to their claims?

The low standard set for teaching in most parts of our country is a source of weakness which I believe should be corrected, and the demand for improvement should come from the teachers themselves. For the sake of ourselves and our profession, but more for the sake of our schools and children, we should insist upon the State's demanding higher qualifications for teachers. So far at least we could follow with profit the example of Germany. The normal school course should be extended to three years, and larger opportunities should be given for professional practice. Graduation from such a course, or its equivalent, should be required for the position of teacher in elementary schools. Of the secondary school teachers there should be demanded, in addition to high scholarship, at least one year of professional training. When all this is done, the State or municipality should follow another example of Germany by giving to all worthy teachers a life tenure of their office. Then, and not till then, shall we have a profession of teaching in the sense in which it is recognized in Germany.

I have spoken of the teacher's influence in Germany in what may be called outside affairs. In the schoolroom, his personality is even more marked. Here one learns the secret of his power, which is that he is in earnest in carrying out a purpose. That is what most impresses visitors from abroad. They may not always think the purpose a good one, but the value of a well-defined purpose is clearly seen, especially when behind that purpose—as is generally the case in Germany—there is both intelligence and professional training. Ask any teacher of the elementary or secondary schools there the reason for any particular method or practice and you will find him ready with an answer, given in a way which leaves no doubt as to his sincerity, even though he does not convince you of the wisdom of his course.

Thus there are in Germany at the present time certain fixed and systematic regulations, largely planned by teachers, requiring positive ends to be reached and yet permitting large freedom to teachers in interpreting as well as in reaching those ends. From these conditions one sees that the schools of Germany are both conservative and progressive: conservative in having an organization planned by the accumulated wisdom of a dozen generations of earnest men, and progressive in having a body of teachers well educated, and possessed of great freedom and independence of action. As a consequence, the schools are well fitted to carry out the purpose of their maintenance; and as they are the result of growth and wise experience, they constitute a worthy object of study for other nations. Can America learn anything from them? I believe she can, in spite of the half expressed fears, occasionally heard, lest American schools shall become Germanized. So long as there is anything in common in the natures and purposes of the two peoples, so long may they learn from each other lessons of importance in matters of education. And I believe at present we can learn more from them than they from us. What are some of those lessons?

I have alluded to two features of organization which we may well borrow from Germany: (1) better qualifications for teachers, (2) a stronger tenure of the teachers' office. To these may be added a third, viz., a more orderly and thorough system of supervision of the schools—a supervision which will help to encourage and support the best work of the teacher and head off the mischief which is now frequently made by ambitious and ignorant members of school boards.

In courses of study, also, we may adopt some features of

German courses which differ materially from ours. Nature or elementary science lessons should have as prominent a place in our programmes, and should be as systematically planned, as arithmetic or geography. The work in arithmetic should be lessened in amount and rearranged to suit the needs and capacities of the pupils. Time should be provided for physical training, which should have as scientific a basis as intellectual training has. More time should be given in our high schools to a single science than is now generally given, and the courses and classification should be so arranged that pupils can, if they wish, begin the study of languages earlier than they do by two or three years.

In matters of helps, there should be provided by the State all needed text-books and apparatus, and there should be, in convenient places, museums containing all kinds of apparatus, text-books, and reference books. It is to our shame that we have not long ago established in this country institutions of these kinds. In methods of teaching, also, we find Germany a profitable field for observation. The limits of a magazine article will not permit me to go into details on this point: but the mere mention of the following characteristics of the German schools will suggest to us ways of improvement.

First. The general practice of leading the children to think for themselves, especially by the use of objects and pictures. *Secondly.* A careful preparation of each day's work by the teacher—both in planning how to present the various subjects and in storing the mind with much information about them. *Thirdly.* A vigorous watchful interest by the teacher in the subjects presented and in the pupils taught. I would not have our teachers adopt the same vigorous means of securing exactness as are sometimes employed by German teachers, but I wish they could have some of their enthusiasm in the schoolroom.

It is difficult to point out any one subject of study in which our weakness in these three particulars is most noticeable. Yet I venture to speak of geography, in which I believe our pupils should acquire more real knowledge by observation and by thinking than they generally do, even though it be at the expense of some general information.

In visiting the schools of all grades in Germany, one comes to learn that the knowledge acquired is more *in*tensive than *ex*tensive. In the subject just mentioned, an incident comes to mind which illustrates this point. I was visiting a sixth or seventh grade in the famous Francke Institution at Halle, and was introduced to the children and given permission to examine them. They had just been reciting in geography, and now I thought was my opportunity. I had heard them, as I had heard other classes, wisely tell of the various soils, altitudes, and slopes of Germany, the causes of land and water formations, and the reason of certain climatic conditions, all in their own country. Now I thought I would test their knowledge, or rather their general information, about America. One half of the class I found knew something of New York. About an equal number had something to say of the great size of Chicago. But not one of all the forty or more boys of that class had even heard of *Boston.* A Bostonian would not soon forget such ignorance. Again, I remember the reply of a gymnasium boy to my question what he knew of Washington: "He, with Blücher, defeated Napoleon," he said. Washington and Wellington were all the same to him so long as the hated Napoleon was defeated.

But an American in Germany, if he wishes to keep a true judicial spirit, must forget that he is an American, so often is he reminded that his country has no history. I remember one teacher in a girl's normal school who gave all the history of America that was to be given, in two lectures. In one of the lectures he made no less than three misstatements; but they helped to serve his purpose of not unduly exalting a country which has already too many charms for German subjects.

In what I have said of the German schools I have felt called upon to emphasize their good features only. With such elements of strength, we should expect to find some elements of weakness. These faults have their origin in the ends or purposes of a people who are intellectually strong, and whose political safety lies in keeping up a military spirit.

Few text-books are used in the elementary schools,—fewer, I believe, than is good for the pupils,—first, because a knowledge of the use of books and a good habit of using them are most valuable to people of any walk in life; and secondly, because a proper use of them prevents too great dependence upon the teacher. The habit of talking in the recitation clings to teachers of all grades and kinds to such extent as to preclude opportunities for quiet and independent thinking. So far at least our best teachers are in advance of the Germans.

Again, so far as I could learn, the cultivation of the will is sadly neglected in the schools of Germany; self-control is lost sight of in discipline, and obedience is exacted by the severest means. In this particular, at least, their teachers may learn wisdom from us. And perhaps they will be willing to do so when the menacing armies upon either side of their country are disbanded.

One word, in closing, upon our own prospects for the future. I have said that our schools were poor in comparison with the schools of Germany. And yet I believe I am not inconsistent in saying that the best we have is better for us than the best that exist in Germany. The trouble is, our very good schools are far too few. Instead of finding them everywhere as we do in Germany, in the country as well as in the city, and in all parts of each, we are obliged in this country to make a hunt for them, even in the most favored places. When they shall be found not the exception but the rule,—not depending upon exceptional conditions but the outgrowth of a wisely planned organization,—then we may not have to sit at the feet of Germany as learners, but can bid the teachers of that country come to us, and learn how to train boys and girls into intelligent, self-respecting, self-ruling, and God-fearing men and women. Let us work on with the hope that that time is coming!

JOHN T. PRINCE.

AGENT OF THE STATE BOARD OF EDUCATION,
NEWTONVILLE, MASS.

IV.

EDUCATION IN THE ELEVENTH CENSUS YEAR, I.

INDICATIONS FROM SCHOOL REPORTS.

The publications of the Eleventh Census show that its inquiries regarding education were along two distinct lines. First, the enumerators gathered from the people the number, age, sex, race, maternal nativity, and time occupied in school, of teachers and pupils; like particulars regarding illiterates, as far as applicable, with their occupations. The results are not ready for publication. Second, school officials were called upon for statements from their point of view. Customary reports were utilized as far as possible, and the general results are already published, subject to revision and closer classification.

For a century the Census has been a temporary bureau, suddenly organized and presently disbanded. Such a bureau can have but a moderate influence upon the forms of annual record on which it must chiefly depend for information. The use of a question theoretically important must, therefore, be determined largely by the ability to answer from records.

The Tenth Census collected a vast amount of information regarding schools, but the office was closed before anything except number, sex, and color of those enrolled in ordinary public schools was available. It seemed imperative on the Eleventh Census, therefore, to ask regarding education only a few salient questions requiring a minimum of labor for reply and whose general results could be quickly reached. To minimize trouble for school officers, they were asked to use their usual school year ending nearest June 1, 1890.

In view of all considerations of importance, readiness of reply and possibility of quick publication of results, inquiries for ordinary public schools were condensed to the following form :

The enrollment for the year ending ———, 1890, was :

	WHITE.	COLORED.	AGGREGATE.	REMARKS.
Male pupils.				
Female pupils.				
Total.				
Male instructors employed.				
Female instructors employed.				
Total.				

Is any high school department included above ? ———

If any high school department is included, please make the proper entries below.

The high school enrollment included above was:

[Here followed a blank statement like the above.]

The important item of effective attendance, in some states represented by the total number of days of attendance of all pupils, has not been recorded to an extent that would enable tables of national application to be prepared.

The item of average attendance, of some value for a single locality with a known duration of school, can be reached for groups of schools of varying duration, if at all, only by tedious calculation.

Additional questions were necessary for public universities and private schools and the subdivision parochial schools, with a view to an ultimate general classification as Elementary, Secondary, and Superior.

The number of teachers is omitted in the usual reports of two states.

Rhode Island alone, of all the states, appears to have been able to secure all enrollments of pupils in the year and to exclude duplications. Not only are transfers, promotions, and re-enrollments, which swell the annual enrollment of many towns and cities in the nation, set aside in the report of the

Commissioner of Public Schools of Rhode Island, but the duplications in the state by enrollment in different towns are pointed out. The officials of large states cannot so fully eliminate duplicates, but no worthy statistics of national school attendance will be available till the officers of districts, towns, cities, and counties, in each of which schools are managed as a unit, can state at least the number of different pupils annually enrolled in their respective units.

Sex controls the arrangement of classes, buildings, and grounds almost universally, and it is of high importance in school statistics for its local bearing on the conditions of child labor; yet twenty states have not been showing the sex of pupils in their published reports.

Color, as a superficial indication of race, is an important item in national inquiries, though over great areas pupils are of one race. Only California, Indiana, and Nebraska, North or West, have showed enrollment by color in their recent state reports.

School officers, state and local, generally rendered most cordial assistance. Teachers who had no record of sex or color in the past year were able to judge what allowance to make for changes with present facts before their eyes. Local officers often knew the sex and color in schools for which only number had been required for state reports. Superintendents Jackson, Alaska; Raub, Delaware; Pickett, Kentucky; Chapman, New Jersey; Finger, North Carolina; Massey, Virginia; Thayer, Wisconsin, secured reports from their states with the added item of sex of pupils. Superintendent Chapman also added color. The various bulletins explain what course was pursued for the color and sex columns of other states.

The first national school census was taken in 1840. Its classification fits well with the classification Elementary, Secondary, and Superior.

The following table presents the general changes that have apparently taken place in fifty years by decades:

TABLE I.

PUPILS ENROLLED IN SCHOOLS, EXCLUSIVE OF SPECIAL CLASSES, REFORMATORY, CHARITABLE, AND INDIAN SCHOOLS:

	1840.	1850.	1860.	1870.	1880.	1890.
Population.	17,069,453	23,191,876	31,443,321	38,558,371	50,155,783	62,622,250
All Schools.	2,025,656	3,642,694	5,477,037	7,210,420	... ...	14,225,000*
Primary and Common, 1840, Public, 1850, etc.	1,845,264	3,354,173	4,955,894	6,228,060	9,951,608	12,660,000*

* Approximate numbers, subject to revision.

The State Universities and other public schools not usually returned in the summaries of public schools, will give an additional enrollment for 1890 of about 65,000. The bulletins issued by the Census Office justify the use of 750,000 for private schools, and 750,000 for the subdivision parochial schools, subject to further increase by belated returns.

The errors in all the years seem to have had a fairly uniform influence, apparently partly due to the constancy of local conditions. The variations of school age and methods of administration must modify the value of any comparisons between two states. Great local changes adjust themselves into a moderate general effect. In illustration, compare the twenty years from 1850 to 1870, and the twenty years from 1870 to 1890. Population apparently increased in the first interval 66.26 per cent., and in the second, 62.41 per cent. Total school enrollment seems to have increased 97.94 per cent. between 1850 and 1870, and almost 96 per cent. between 1870 and 1890. Revision of returns will somewhat modify the rate for 1890, but the rate of gain in total school enrollment from 1870 to 1890 is likely to appear nearly identical with that from 1850 to 1870. The difference in the use of terms and the uncertainty of their interpretation in the various censuses, make minutely accurate comparison impracticable.

The term "public schools" is popularly used in recent years to include the great body of common schools, as they are called in certain states, maintained for local convenience, not usually including schools, universities for example, maintained for the general public; nor the various schools, supervised in some states by Boards of Public Charities, less important in 1840. At the South, and to a degree in the North, public and private effort are often so combined that a rigid distinction is impracticable.

The public schools of recent years, to which the "primary and common schools" of that time most nearly correspond, did not form a distinct classification in 1840. The title in that Census, "pupils at public charge," would approach the present "public schools" only in limited portions of the country.

Under the limitations we have the following apparent conditions:

TABLE II.

DECADES ENDING	1890.	1880.	1870.	1860.	1850.
Gain per cent. of population. . .	24.86	30.08	22.63	35.58	35.87
Gain per cent. in public school enrollment*	27.22	59.79	25.67	47.75	81.77

* "Primary and Common" in 1840, "Public" in later censuses.

The great relative gain in enrollment in the first decade seems due in part to the enthusiastic development of free schools in the North and West, an effect subsiding in the second decade. The decline in the third decade is apparently partly due to the disturbance of social institutions by the war. The development of Southern public schools helps swell the rate in the fourth decade, equalized in the fifth decade to a closer relation to growth of population.

The recent public school movement in the South is only to be compared with the educational revolution between 1848 and 1860 in the states formed of the original Northwest Territory, except Indiana, where a legal decision caused delay, when the union free school, depending on local taxation to round out its funds, became the ideal.

This gain at the South, as forty years ago in the North, is partly at the expense of private school attendance. Academies and private schools have lately been rapidly changed into public free schools, in some cases retaining the original chartered titles. Public funds are granted with growing liberality by states, and the maintenance of public schools by local taxation gains rapidly; to a great extent, however, under special laws.

The apparent relation of public school enrollment to population, white and colored, in the Southern states in 1890, and the relative increase of colored enrollment in the decade are seen in Tables III and IV:

TABLE III.

DIVISIONS.	POPULATION 1890.		PUBLIC SCHOOL ENROLLMENT 1890.		PER CENT. OF ENROLLMENT TO POPULATION.	
	WHITE.	COLORED.	WHITE.	COLORED.	WHITE.	COLORED.
Total	15,493,323	6,944,915	3,358,527	1,288,229	21.68	18.55
South Atlantic Division.	5,567,440	3,287,395	1,168,557	582,668	20.99	17.72
South Central Division.	7,401,415	3,503,389	1,602,460	672,757	21.65	19.20
Missouri	2,524,468	154,131	587,510	32,804	23.27	21.28

The South Atlantic Division includes the coast states, Delaware to Florida, the District of Columbia, and West Virginia; the South Central includes all other recent slave states except Missouri.

TABLE IV.

DIVISIONS.	ENROLLED IN PUBLIC SCHOOLS.				PER CENT. OF INCREASE.	
	WHITE.		COLORED.			
	1890.	1880.	1890.	1880.	WHITE.	COLORED.
Total	3,358,527	2,301,804	1,288,229	797,286	45.91	61.58
South Atlantic Division.	1,168,557	859,510	582,668	379,543	35.96	53.52
South Central Division.	1,602,460	980,338	672,757	393,697	63.46	70.88
Missouri	587,510	461,956	32,804	24,046	27.18	36.42

The colored race leaped from the illiterate slavery of fifty years ago, and in ten years it has taken rank with the white in eagerness to go to school.

A special land system exists in Texas, and its counties, like the townships of the Northwest, have school funds from land grants. National land grants have been of some value to other states of the Southwest. For the most part the South has no such aid, yet its earnest men and women have roused such a zeal that the educational danger to-day in whole states is that known in real estate circles as "a boom."

Several Southern states make appropriations to be distributed for the maintenance of schools, leaving buildings to be provided mainly by local contributions. The state of Texas, for example, in 1890 gave four dollars and a half for every child of school age, without distinction. Communities of stable property owners can erect commodious edifices if they choose; shifting tenantry, just beginning to know what ownership means, can hardly muster force to put up a log pen with a roof over it on donated land with donated timber. Property owners are able to lengthen out their schools by contributions and tuition fees, while men with empty pockets let their schools stop when the public money is exhausted. It is less a question of race than of resources and numbers. Weak districts anywhere in the United States have weak schools. With allowance for difference of climate, a clean, unchinked log cabin in Florida or Louisiana is better than any one of the hundreds of schoolhouses reported unfit for use in feeble districts of states where the snow lies deep for months. The question of ability has much to do with the expenditure for schools. Sparsely settled districts do not have schools like those of densely populated districts.

The public school enrollment of California, Oregon, Iowa, Minnesota, and all states east of the Mississippi and north of the Ohio River, except Rhode Island, shows a decline in the decade as compared with population. It is a question whether the total school enrollment has thus declined, or even the public school enrollment, to the degree indicated. Better records may eliminate duplications to a greater extent than heretofore. It is seriously to be regretted that effective attendance could not be generally compared. It has evidently increased in some states in a greater ratio than the enrollment.

Some local peculiarities are of general importance.

In North Carolina contracts may be made with a private school to teach the local public school for the public money during an agreed time, in which the teachers are responsible to public officers.

In Georgia the public money may be legally used in a peculiar combination with private effort to extend schools beyond the time provided by public money. One hundred days' (five school months) free tuition is provided this year in Georgia, which closely corresponds with twenty-two weeks' average in Maine in 1890, remembering that private aid extends many Georgia schools beyond one hundred days.

In Alabama the pro rata allotment of public money may be paid to one who has found it necessary to send his child out of the district to reach a school, forming an indirect way by which public money may go to any private school.

There is a growing custom in several Southern states to arrange with private schools for public tuition in such a way that non-resident pupils, pupils out of school age, and pupils in special branches constitute the private school and pay tuition, while the public elementary free school, composed of local pupils of legal school age, occupies distinct rooms under teachers conforming to public school laws. This simplifies the business relations and is an economy of buildings to the community.

The union of public and private tuition is by no means peculiar to the South. In Massachusetts, towns are allowed to contract with academies to take the high school pupils.

In New York, under the system of examinations of the University of the State of New York, public funds are allotted to schools, public or private, which show that they are doing work of the prescribed standards.

In Texas, about one hundred and fifty counties (1891) are subdivided into school districts; about eighty are called community counties. A community has no territorial boundaries, but consists simply of a number of people who have organized to support a school. There are also cities and districts with special charters adding local taxation to the resources of the schools, which is also possible in ordinary districts, but not in any single community.

The general population of New Mexico is not in the United States by any act of its own. It was the strong grasp of our hands that took a great tract into our borders and endowed its Spanish-speaking whites and sedentary Indians with citizenship, without asking their wishes or requiring any preparation on their part, except that they were Mexican citizens at the time of the treaty. The region has been but gradually affected by the customs of English-speaking people. The Spanish language still prevails over broad areas, and all public effort of the people is still closely related to the work of the church of their fathers. Nearly one-fourth of the schools are taught in Spanish, while more than a third are taught in English and Spanish. The national government publishes laws, important to New Mexicans, in Spanish as well as English. The public schools, up to the law of February, 1891, were almost indistinguishable from church schools. For New Mexico, therefore, in its present transition condition, neither church authorities nor public school authorities can definitely tell what enrollment or what expenditure ought to be credited to each. The children have been religiously taught, the teachers have been supported, the parents have been satisfied; but there is scanty record of particulars. In one county the reported school enrollment, strongly confirmed, shows fifty boys to one girl. Over the great stretches of this county, larger than Massachusetts, and with but a little over three thousand children of legal school age, girls cannot venture as safely as boys to the isolated schools. Here it is again emphasized that weak schools are less a question of race than of sparse population, small financial ability, and feeble social organization.

Public schools are nominally bound together in a system whose nerves connect the humblest district of the extremities with the head in the state capital. Not even a nominal system embraces the private schools. Some transient private schools of the census year left no record. Changes of name and of address confused correspondence for more permanent schools. The general response to the Census inquiries has been heartily cordial, but a reluctance to furnish information has evidently kept back some returns.

The citizen who believes that the public school should do all educational work; the opposite extremist who does not believe in even elementary instruction at public expense; citizens looking to the state to make general provision for universal education, and to private zeal to make provision for special needs, all have a vital interest in the enumeration of every private school as well as in that of every public school. Private school teachers of any high purpose have an interest in the aggregate efficiency of all schools including their own. Those interested in private schools from a religious motive generally recognize the importance of accessible statements of school enrollment and great labor is expended to secure accuracy in year books of organizations maintaining parochial schools, or elementary schools, in the congregations with religious instruction, and other schools that depend on a support broader than that of a local congregation.

While private-school teachers almost universally recognize the public importance of statistics of their attendance, there is a widespread feeling among them that their business affairs are not of public concern, and that private schools should not be pressed for minute financial statements till the citizen can secure for the school which depends on his taxes an intelligible balance sheet which he can compare with like statements from other parts of the Union.

Private institutions are reported by name with more or less fullness in the state reports of California, Georgia, Illinois, Indiana, Kansas, Mississippi, Missouri, New York (Regents' Report), North Carolina, Ohio, Oregon, Pennsylvania, South

Dakota, Tennessee, and Washington, by enrollment in the state reports of Connecticut, Florida, Iowa, Massachusetts, Michigan, New Jersey, New York (Superintendent's Report), Rhode Island, Utah, Vermont, Virginia, and West Virginia. The report of the Regents of the University of the State of New York is very full for academic and higher institutions reached by university examinations.

The report of the State Census of Massachusetts in 1885 is high authority for private school enrollment at that date. Few state officers claim completeness in their returns of private schools.

The National Educational Association has recognized the inharmonious condition of school statistics—one step toward a remedy.

The Census is the agency of the people for gathering great groups of facts into an intelligible whole at stated intervals. If the officers of the people in the smallest units of social organization have no records, or let them tangle like a mass of unwound yarn, time and labor will be required to obtain facts and arrange them in an orderly manner. Unfortunately, it is not a question of time, labor, and money only. No skill, patience, fidelity, and industry, even at unlimited expense, can obtain satisfactory results in a National Bureau of Statistics till the local records are reasonably complete and accurate. With clear local records, kept at imperceptible increase of cost over that of the present confusion of methods, the materials for national compilation would be ready at call, and a central bureau could be justly held to responsibility for errors in the grand result of combination.

In all the years of a so-called American school system, the country has not reached anything like uniformity in recording essential facts, or even in agreement as to what facts are essential. The great lesson of the Census of 1890 to the people of the United States, and to those connected with schools in particular, is the necessity of completeness and accuracy in local records of items essential for national information and comparison.

The Eleventh Census came in a period of peculiarly intense and sensitive feeling regarding religious instruction. Marked manifestations of this feeling have attracted general attention, though some have considered them temporary and due to local causes.

Numerous special institutions are maintained for instruction in theology. Missionary and education societies in most of the great religious bodies look after the training of remote negro, Indian, and white children, contracting to give instruction for the state and utilizing appropriations from national and state treasuries with general readiness. When the question of religion in daily elementary instruction bears upon the citizen's own neighborhood, sharply defined differences of view develop, though some are indifferent to the religious question. Hebrews and many Christians look to the state for so-called secular instruction, and to the church to extend the religious training of home. The Hebrews have strong educational organizations in great cities, maintaining some technical schools, and to an extent requiring attendance at the public schools as a prerequisite for admission to the Hebrew schools.

The Sunday-school partly satisfies the demand for elementary religious training by the church, but very large numbers of Christian people regard it as inadequate. Some strong supporters of the common schools, demanding additional definite religious instruction, are content to have the children called together in confirmation classes, or brief parochial schools, at hours or on days or in weeks that will not interfere with attendance at public schools. Others desire to have religious instruction united with intellectual training and physical development in all school life. On this view are based permanent parochial schools, diocesan schools, synodical schools, and private schools under church auspices. Parochial schools, for the first time distinctively noted in a census, now closely equal all other private schools, for which latter the religious idea is also the strongest motive.

There is a confusion of law and practice in the United States in marked contrast with the British "Grant in Aid" plan, under which a government allowance has been made to any school, showing that it was helpful in general education, without discriminating between Mohammedan, Brahmin, Episcopal, Scotch Presbyterian, or American missionary schools. This system is most closely paralleled in this country by the plan of the Regents of the University of the State of New York, whose grants are not based on religious tests, but upon the scholarly character of the work.

The northwestern states were deeply agitated in the Census year by the parochial school question, centering in Wisconsin, and national results are already manifest from a heated contest which needs to be studied without bias and with the respect for the convictions of others which we demand for our own.

A decision of the Supreme Court of Wisconsin, published early in 1890, treated the King James version of the Bible as a sectarian book, and granted a *mandamus* against a district to discontinue its use. A Nevada decision had been adverse to the Catholic version. The sacred books of other faiths are liable to a like judgment. The Mormon Bible would hardly receive judicial favor. There is a movement to secure an amendment to the national constitution prohibiting appropriations of public money for sectarian uses. The rigid enforcement of such an amendment might affect not only humble districts where religious exercises are conducted in harmony with the views of patrons united in one faith, but it might cut away the financial reliance of superior institutions in which there are religious exercises.

The adherents of a form of faith often constitute whole districts, and their teachers, when of the same faith, conduct religious exercises in the school without offense to the patrons, greatly increasing the popular estimate of the strength of certian church organizations.

In illustration we may take the Mormons. The secretary of the Church Board of Education made a detailed statement, showing ninety-six teachers and 5092 pupils in the church schools, small numbers to those who have counted public schools, in certain states and territories, with Mormon pupils and Mormon teachers, as church schools. On a broader scale the same applies to schools known by other names. The school is permanent, its daily exercises suit the present patrons, and when "Gentiles," or other dissenters from the dominant faith, make a change in the patronage, religious exercises undergo more or less modification or are omitted.

The reports of the census year indicate that a constitutional amendment forbidding appropriations of public money to sectarian schools, combined with decisions that Bibles are sectarian books, would produce effects not yet measured. Enormous additions must be forthcoming from private sources in the relinquishment of public moneys if religious exercises are retained, or a change in numerous schools must be made if the public aid is continued, whether in the extremes of the country or at the seat of government.

The Board of Education of Massachusetts, in a report for 1890, recognizes a gain in private schools. Private school enrollment in other states as well as in Massachusetts has evidently grown at the expense of public school enrollment. The official school reports of the decade have been debating the completeness of the public school and the motives that prompt the establishment of private schools. It behooves us to treat the questions that arise with generous candor and to remember that neither a public school nor a private school in itself has any quality of influence which can be determined by its name.

There are useful private schools. The school system of the city has its office. The graded school of the town has its work. The log schoolhouse of the woods trains men. The sod house of the prairie makes its record of the best school in a Nebraska county in 1890, and inspires confidence in the builders who preferred to use sod houses rather than bond their districts, a refreshing reminder that the school financiering of the day is not all reckless.

JAMES H. BLODGETT.

WASHINGTON, D. C.

V.

DISCUSSIONS.

THE NEW DEPARTMENT OF PEDAGOGY AT HARVARD UNIVERSITY.

The establishment of courses for the instruction of teachers at Harvard University is another recognition of the necessity for trained teachers for secondary schools, and for the higher places in the public schools generally. It is not strange that the demand for such teachers has lately become more pronounced, and that the opinions upon which it is based have been urged with greater emphasis. Experience has proved that we have failed to achieve results which could reasonably be expected from the great general interest in education and the money expended upon it. One of the causes of these inadequate achievements is found in the meager professional equipment of teachers and of influential school officers. We lack men whose professional attitude is rational and whose assumption of leadership in education is justified by a knowledge of principles. Men who, in addition to a liberal general training, possess professional culture and insight. We need more men who can and will study their work philosophically; who are fitted to be leaders because they are able to lead.

All higher schools for the training of teachers, and the establishment of departments for such training in the great educational centers, aim directly at developing such ability, so far as training can do it. In the same sense in which we can make men by education, we can make teachers. No training can, of course, make good native poverty of mind and heart. But no one doubts the effect of training upon persons capable of profiting by it. No doubt professional training of itself can never produce a finished artist. But it can and does develop a permanent professional attitude; it develops a thoughtful student of his profession and confirms that far-reaching and general interest in the study of mind and nature, of men and affairs, without which growth is impossible, and the intelligent solution of educational problems either very difficult and haphazard, or quite out of the question. Professional training does this by making the learner distinctly conscious of his needs, his possibilities, and the means he may employ to realize his aspirations.

The study of any art naturally involves the recognition of its principles and processes. The courses offered at Harvard University, in 1891–92, to teachers, and to men who wish to become teachers, thus naturally fall into two groups. One group deals with the history and the theory of teaching, and the other group deals with management, supervision, and organization, and with the methods of teaching the several academic subjects, Greek, Latin, English, German, French, History, Mathematics (Algebra, Geometry, Trigonometry, Elementary Analytical Geometry), Physics, Chemistry, Botany, Zoölogy, Geology, Geography. The instruction in each of these courses is in charge of one or more of the instructors belonging to the corresponding department. Special requirements, designed to aid in securing the best results, are made of students taking these courses. The additional work thus required is especially determined for each course, but consists in general of prescribed attendance upon other college exercises, of conferences, of exercises suggested by the needs of the students, and of the observation of teaching in schools in the vicinity of the University, with reports of such observations. In addition to these courses, Professor William James will give twelve lectures on "Topics in Psychology of Interest to Teachers." All of these courses are "open to men who are graduates of colleges, or scientific schools, or who are otherwise known to be of suitable age and attainments, under the same conditions as those which govern admission to the graduate school."

It will be noticed that the instruction of teachers at Harvard University differs from that offered elsewhere, among other things, in the extent to which students study methods of teaching the subjects of a high school or academic course of study, and observe, under direction, the actual teaching of those subjects. The same plan will also be followed, so far as possible, in teaching methods of management, supervision, and government. The tendency to mere imitation is controlled by the courses in Psychology and the Theory of Teaching, which enable the student to realize the rational basis of the methods presented. The instruction throughout will be by lectures and discussions, with frequent opportunities for conference and consultation. It is intended to adjust all details in accordance with the needs of students.

PAUL H. HANUS.

HARVARD UNIVERSITY,
CAMBRIDGE, MASS.

THE ANNUAL MEETING OF THE ASSOCIATION OF GERMAN PHILOLOGISTS AND SCHOOLMASTERS.

The forty-first annual meeting of this distinguished and influential body of teachers was held in Munich. It was presided over by Prof. Dr. Wilhelm von Christ of the University of Munich, and Dr. Bernhard Arnold, rector of the Wilhelms gymnasium in the same city. Over six hundred eminent teachers from all parts of Germany were present.

It is of great significance, that, for the first time, a purely pedagogic, as distinguished from an academic subject, was discussed in the general meeting. Prof. Dr. Schiller, of Giessen, widely and favorably known through his suggestive writings on educational subjects, read a paper on "The Professional Preparation of the Gymnasium Teacher." He traced the history of the training of secondary teachers, and showed that, as regards three points, instructed opinion is now unanimous: the secondary teacher must receive theoretical instruction in pedagogy, he must gain a conception of a model school organization, and he must have done a certain amount of practice teaching under competent supervision and direction. Pedagogical seminaries in connection with the universities can, if conducted by men of practical experience, accomplish a great deal, if they confine themselves chiefly to carrying forward the science of education. Normal schools do not make the teaching of pedagogics at the universities unnecessary; they rather emphasize its importance. The proper attitude of the normal schools toward the three points above named, will only be determined by time and experience. Until recently, the Prussian normal schools have attempted to impart a higher culture to their pupils, as well as to give them a pedagogic theory and practice and so prepare them for their life-work. As a result, the pedagogic training came to be of less importance than the academic, and the normal school in so far failed to accomplish the purpose for which it was founded. More recently, however, some of the best schools have given up this practice, and seek rather to train the future teachers so to deal with the knowledge they have acquired at the universities as to make it most available for purposes of instruction. This is difficult, and only possible when the normal school commands the services of very scholarly and competent teachers, who are able to keep pace with the progress of learning. Each normal school will then divide itself into sections where teachers of classical philology, of modern languages, of physics, etc., will be instructed in those pedagogic matters that pertain to their respective specialties. The instruction in physical training should be the same for all students, in order to hasten the time when every class teacher shall be able not only to supervise the physical training of his class, but to serve as a model of bodily health and vigor to them. A year ought to suffice to give to university graduates all the pedagogic training that is necessary. It is of great importance, in order to combat the narrowing tendencies of too great specialization, to group future teachers of the languages and of the natural sciences in the same institution. They cannot fail to have a helpful influence on each other. The normal school must deal with each one of the three points above mentioned. The theoretical instruction in pedagogics must develop the fundamental notions of psychology and ethics, and the chief events in the history of education, and apply them to the present problems of education and instruction. In this way the science of education is to be built up. Here belongs also a knowledge of school legislation and school hygiene. The students can be most easily and profitably introduced to the practical work of teaching in the lower division of the practice school, because here the problems of mere instruction are simplest.

The speaker went on to develop at some length his view of how such an institution should be conducted in all its details. He concluded by holding that the secondary teachers of Germany would never develop a "pedagogic consciousness," would never become what they should be, until such a training is general.

Despite the fact that the other sections of the meeting had attractive programmes, fully one-half of all the persons present attended the sessions of the pedagogic section. Here an important paper was read by Director Otto Jager, on "The Permanent and the Temporary in the Humanistic Gymnasium," in which the fact was emphasized that the gymnasium of the present day must train its pupils for actual life, and therefore the mother tongue, the other modern languages, and historical studies must be made more of in the curriculum. Prof. Hartfelder, of Heidelberg, read a paper on St. Paul's School, of London, which was full of interest. The other papers read in this section were of less importance.

Dr. Arnold, in his closing address, was loudly applauded when he said that the significant facts of this session were the important place assigned to pedagogic questions, and the interest and enthusiasm that they aroused.

The forty-second meeting of the Association will be held in Vienna in 1893.

KASPAR HAMMER.

WILHELMS GYMNASIUM,
MUNICH, GERMANY.

CITY SCHOOL SUPERVISION, I.

The preparation of an initial paper on city school supervision has been suggested to me. I am asked to omit in the presentation all administrative and financial questions and to emphasize the purely educational side of the school system. My conception of the duties of the position persuades me that such a presentation as is proposed would be one-sided and incomplete, and therefore subject to misconstruction.

Considerations of the sort contemplated require that not only the different relations arising from varied and widely separated localities should be borne well in mind, but more especially the sizes of the cities within view. Eight hundred ninety-nine cities in the United States have a population exceeding one thousand people. One hundred twenty-three have over twenty-five thousand; of these, less than twenty, not all of which claim an efficient school system, exceed one hundred fifty thousand inhabitants. Educational councils and conventions in discussing school supervision have largely given attention to the twenty great municipalities.

The peculiar conditions requiring the organization of separate departments in such large administrations make it better for the present purpose to omit, in the consideration, the great cities. The school superintendents in cities of one hundred fifty thousand, or less, have set before them quite a different task from that before the superintendent of New York, Philadelphia, or Brooklyn. The duties pertaining to the lesser jurisdictions are the chief interest to most of us who are now in the harness.

The written laws prescribing the duties of a superintendent, although variously framed, are similar in substance. "He shall have an oversight of all public schools within the boundaries of the district, and shall perform such duties as may be prescribed by the board of education." This formula, while it covers the whole matter, inadequately presents an idea of the complexity and magnitude of the labors of the office.

Two distinct and separate classes of duties are demanded of the superintendent: one relating to the board, the other relating to the schools. Facing the one he is never to have his back to the other; he is to be director, petitioner, adviser, or servitor according to the case in hand. As the executive officer of the board, the superintendent must be conversant with all measures proposed or introduced—not only in general but also in detail. The administration of school affairs is weak, and consequently inefficient when distinct and independent lines of effort are made with no concentrated directive power. The board or its committees are not sufficient. Heating, ventilating, sewerage, seating, lighting, study hours, courses of study, and all else pertaining to the school system are so dependent, one upon the other, that one person must have intimate knowledge of the whole scheme and its execution in order to prevent waste and produce the best results. The desirable and essential components of a board are business acumen, and ability wisely to counsel, advise, and generally to direct. The executing and expert force—superintendent, teacher, and janitor—is a purchasable power with a determinable value.

The tendency of thought and study is latterly toward the science and philosophy of education; the outlook is brighter, more encouraging than at any previous time in our history. Eminent men—philosophers and investigators—are giving to us out of their best thoughts the results of careful observations and analyses. The superintendent of the city schools must keep abreast of all these progressive movements; he must be equal to reforms, revolutions, or advances. But the philosophico-theoretic view as presented by the eminent professors will not suffice in this country to establish, conduct, and maintain a city school system. The superintendent must consider fact as well as theory; must accept truths without undertaking in every instance to exemplify by application. Failure and disaster will continue to follow where the executive officer of the board is solely and professionally a teacher; he need not be an excellent teacher himself, if he be able to determine when another is.

The proper expenditure of property, the number, kind, and location of houses, legislation pertaining to schools, the laws and their application in sanitary construction, the interior arrangement of houses, the sentiment of the people upon which the maintenance of the schools depend, are a few of the matters that are somewhat within the scope of the superintendent's office. They cannot be separated from it without detracting from his efficiency by narrowing his outlook and weakening his grasp of the system as a whole. It is not enough that the superintendent be an educational philosopher; he would often better be less of a theorist in principles and their application, and more of a practical business man.

It will not always be as now. America is forming; the rush of enterprises, the unrest and ambitions of people, the well-meaning but harmful expressions and efforts of reformers, some of whom are menaces to the prudent and healthful progress of the community, make it impossible for the highest effectiveness promptly to follow the advice of the pedagogical philosopher alone.

Toward the educational side technical professional skill is demanded. The number of professionally studied superintendents in this country is alarmingly small. Not the pecuniary renumeration, the glory of ambition, philanthropic love, nor a desire to be and to do good has so far been sufficient to induce the necessary number of men and women to prepare for and engage in the work of school supervision. The position itself is not a widely acknowledged distinctive occupation. In time it will assume that dignity. The superintendent's office can never be exalted except as a sequel to the exaltation of the teacher, an intimate and practical knowledge of whose work is a necessity to the superintendent. He must be a fair general scholar; he must have passed through several years of technical training both as pupil and teacher: he is not to the best degree able to supervise primary, grammar, or high schools unless he has for a reasonable time served as a teacher in these respective schools. The conditions of public education force into the superintendent's harness persons whose preparation has been inadequate, whose work has not been such as has fitted them for the duties. Men of liberal education are frequently pressed into the service of school boards, and then learn for the first time, by practice, what before they had known only in theory. A clear loss follows the early administration of such supervisors, and so, instead of having a large number of well prepared superintendents, we are compelled continually to make over material prepared for quite another and different calling in life.

The relations of the superintendent to the teacher are exceedingly delicate and difficult of management. He finds himself associated with men and women, each of superior qualifications in certain directions. They are his equals socially and intellectually; frequently his superiors. He is so to adjust the forces as to accomplish the work of the whole field in the best way. His view is of the entire situation; and often a course of conduct, right and necessary, is insisted upon quite against the judgment of his associates, whose confidence in his management is essential to success.

The little frictions and misunderstandings, such as ever arise in small and intimate communities, are to be regulated; carelessness and shiftlessness are to be upbraided; errors are to be corrected, and insubordination is promptly to be followed by dismissal. Such things, and many more, are to be accomplished when neither the power of the general of the army, nor of the overseer of the shop, can reasonably or profitably be vested in the superintendent.

He is to teach, and in no part of the work is more skill required than in properly and effectively teaching a teacher how to teach, especially one who is failing in the school, but who presents to the inspector many crude, unorganized, yet strong elements of a true teacher. To tell a teacher that the work is unsatisfactory, because the results are unsatisfactory, is easy and cheap. The schools will soon be relieved of a great mass of excellent young persons by such a line of attack. The superintendent's duties require him to help the teacher to do satisfactory work by giving intelligent and dexterous assistance. To do this requires superior knowledge on his part. At the frequent assemblages of teachers, the superintendent is so to preside as to enable each to appropriate from the other whatever can be obtained in the way of helpful suggestions for the conduct of the classes, never concealing the relative merits of his associates, even though his own pride suffer. These meetings must be frequent, and are always helpful when properly conducted. The harm arising from interference with methods of discipline and instruction, is to be avoided by giving all possible personal latitude. Appropriate methods are too often soulless, heartless, mechanical operations. A teacher, to be in the best way successful, must not be subjected to dictation in details.

It is to and for the pupils that the superintendent's greatest force, thought, and study must be directed. All effort has but one aim, all instruments and means one object. All interests center at the children. The schools are for them. The advancement of the pupils' interests is the desideratum of all school management.

The superintendent must be able to classify so that reasonable allotments of pupils to teacher be made; to make provision for extraordinary pupils, whether of mental or physical peculiarities; to avoid inflexible laws, to modify rules, to allay prejudice, to forgive offenses, to advise whipping, to expel pupils, to cultivate morality, to form character, to retain boys in school when they would rather go to work, and to make the children happy. The superintendent of a system of schools should be the publicly acknowledged friend, often the confidant and private counselor, of the young people. He ought to be a welcome visitor at home and at school. He must be able to talk with pupils of every grade, placing himself on their plane of thought and impulse. He ought to be a father; thereby, from an intimate knowledge of his own children's life, be the better able to approach and advise the children of other people.

Looking toward teacher and pupil, one sees beyond, in the same direction, the parents and people. Each individual in the community understands that his is the right to inquire into the conduct and suggest as to the management of the school. Dictation, advice, complaint, and approbation are lavishly contributed. The superintendent is the appointed person to receive these tenders. He must listen courteously, appropriate the helpful suggestions, redress grievances, mollify complaints, and be comforted by approbation, but not disheartened by blame.

He stands as the representative of the board in the conduct of the schools before the people. In this line of his duties, requirements not heretofore mentioned are demanded: A knowledge of humanity, not acquired from books, but from men; a true notion of business and of family relations; an appreciation of home in its thousand forms and conditions; of paternal and maternal discipline in its various degrees; of the loves and hates of neighbors; of the breeding and antecedents of parents—in fact, a knowledge of all that goes to make up one peculiar American social neighborhood is needed by the superintendent, that he may properly and successfully administer and adjust such matters connected with school life as are daily brought before him. It is important that he so adjudicate that appeals from his decision be seldom, that the board be not often annoyed by called meetings for the purpose of reopening cases of alleged grievances upon which judgment has already been pronounced. This latter class of duties demands strength of manhood as the busy world makes manhood, and calls for an activity of a sort that cannot be found in him whose life has been a purely literary one, spent among books, alone in the library. A quarrel prevented by the tact or foresight of the superintendent may save the entire system from an overturning that long time only could right.

AARON GOVE.

SUPERINTENDENT OF SCHOOLS,
DENVER, COLO.

PRACTICE TEACHING IN NORMAL SCHOOLS, I.

A practice school is to a normal school what a hospital is to a medical school. It is a place for verifying and illustrating principles. It is an opportunity to reduce theory to practice. The theoretical side of education is never fully understood till it is supplemented by the practical side. Beginners in education, like beginners everywhere else, need to see the truth at first in the concrete. A principle of teaching or of discipline has a new meaning when seen in its application.

Then, too, the novice never knows what children really are, till he sees live children in action. The sympathy of numbers, the contagion of intellectual activity, the power of example, the force of public opinion, these and similar factors in a working school must be learned in the school itself. The reciprocal influence of speech and action upon pupil and teacher are manifested only in the school.

Power and skill in teaching and governing are developed by teaching and governing. Hence the need of opportunity to practice. Of course, practice can follow the theoretical instruction of the normal school, but the development of skill is more rapid if practice is done under the direction of experts. The acquisition of skill is less expensive to the children if skill is gained in the practice school. Here blunders are detected at once by the practice teachers, and they may be at once avoided. When the young teacher begins work on his own account, he has no eyes but his own with which to observe himself, and so it happens that many of his worst faults remain undetected and uncorrected for years.

I should put these, then, as the three principal uses of a practice school: 1. To make clear the principles of education taught in the normal school. 2. To make known the nature of the child, especially in his social relations; and 3. To develop power and skill in teaching and governing. The organization of a practice school in connection with a normal school is a difficult matter, because the circumstances of almost every normal school differ from those of all others.

As a result of nineteen years' experience in a city normal school, and a training school attached, I have arrived at the following conclusions as to the proper organization of a practice department under the conditions by which I am surrounded:

1. The arrangement of classes in the practice school should be the same as it is for the grammar and primary schools of the city where it is located; and, if there are public kindergartens in the city, the practice school should include at least one kindergarten class. This will give the normal students an opportunity to observe all grades of elementary instruction.

2. The course of study should be the same as in the other elementary schools of the city. Some liberty of variation for the sake of experiment should be allowed in the practice school; but in the main the work should be such as the normal pupils will be required to do when they come to have schools of their own.

3. The teaching force in the practice school should be the same as in other schools of corresponding grades. There should be a principal who is held responsible for the discipline and advancement of the pupils, and at least as many assistants as would be found in other schools of similar grades. The teaching should not be left to the normal pupils exclusively. There must be much teaching by novices; so the children should be protected and guided by a full corps of the best of teachers.

4. The principal of the normal school should have the direction of the observation and practice of the normal pupils, as well as of the methods of instruction employed in the practice school. This is essential to securing harmony of theory and practice in the training of the normal students. Of course the principal of the practice school must be in harmony with the head of the normal school in all important points; but whenever the two disagree, the principal of the normal school must direct the work of the practice school.

5. The teachers in the normal school should perform such service in the practice school as the principal of the normal school may direct. It is important that teachers of theory should be required, at times, to reduce their theories to practice. Then, too, the best way of directing methods is often by example.

6. The practice school, thus organized, should be used at first as a school of observation. Whenever the methods of teaching any subject, reading for example, are under consideration in the normal school, the normal pupils should be taken to the practice school for a practical demonstration of what they are studying. While this work of observation is going on, the normal pupils should be required to teach their classmates enough to give them some idea of the orderly presentation of subjects, and of the proper sequence of questions in teaching.

7. Later on, the normal students should be required to take charge of the classes in the practice school. This, for a long time, should be done under the immediate direction, supervision, and criticism of the teachers of the practice school. The practice teachers should be responsible for the proper planning and preparation of lessons to be given by the normal student, as well as for the general order of the classes. They should freely criticise, advise, and encourage. Practice

work by the normal pupils should be so arranged that only one normal student will be in a room at a time; and she should remain for several successive weeks. Thus no more normal pupils can be trained in the practice school at the same time than there are classes in the practice school.

8. The practice school, as already described, should be supplemented by teachers in various parts of the city, selected for their theoretical knowledge of education and practical skill in teaching and governing. The classes under the charge of these teachers should be used for purposes of practice the same as the classes in the practice school itself. These teachers should be as many as are needed, together with the regular practice teachers, to accommodate one-half of the students in the normal school. By this means the poor work of novices will not fall heavily upon the pupils in the regular classes of the practice school.

9. All the practice teachers, both those in the practice school and those outside, should meet the principal of the normal school from time to time for purposes of consultation and instruction in regard to their work with the normal students. Without such conferences the normal students lose much time, and the practice teachers work at a disadvantage.

A well organized practice, or training school, and a well selected corps of practice, or training teachers are, in my opinion, a necessary adjunct of a normal school in a large city.

LARKIN DUNTON.

NORMAL SCHOOL,
BOSTON, MASS.

THE USE OF CLAY IN SCHOOLS.

The evolution of methods of teaching is a curious and interesting subject of study. Take, for example, form study, and drawing, as the subject is now taught in every school that makes any pretense of keeping up with educational progress. It is only five or six years since the study of the facts of form, and the representation of form through the medium of pencil and paper, were generally blended in school work. Now, any teacher who would insist on separating them would be regarded with the same wonder with which we look upon the implements of a troglodyte. We are surprised at the stupidity that kept the two branches of the same study so far apart. And yet, stupidity is not the term to use. The teachers who did their best to give "observation lessons" on the cube or the cylinder, from a single object held in view of the class, or even from a chart or a rude blackboard drawing, were faithfully teaching according to the light then afforded them, or with the only material placed at their disposal. And, in like manner, the teacher who conscientiously taught her pupils to reproduce the flat copies in a drawing-book is not to be condemned because she followed, according to her ability, the instructions of those who ought to have known better.

Gradually it has been dawning upon the minds of educators that, desirable as it is to develop the perceptive powers of children, it is extremely difficult, if not impossible, to cultivate observation as an end in itself. Observation in practice is always a means to the formation of ideas. Ideas are shadowy and evanescent until they find appropriate expression. It is the expression that lends not only strength, but interest, to their development. Hence expression is the end to be sought. Observation assumes its natural place when it is regarded as one of the means by which this end is to be achieved.

If we leave language out of consideration for a moment, the facts of form may be expressed in two ways—either by making, as modeling in clay or cutting and folding paper, or by drawing, as with the pencil, the pen, or the brush. Which method should come first? Expression by the pencil, without any intermediate step, has had a fair trial. "Model and object drawing" was the next step in the evolution of method after copying from the flat had been tried and found wanting. Object drawing, in the case of very young children, if practiced before the facts of form are learned through expression by making, does not produce good results. Nor could it be expected that it would. The reason is not difficult to find. The picture of a cube, for instance, no matter how well drawn it may be, is wholly unlike the original. That expanse of white or tinted paper, those few gray lines, bear no resemblance whatever to the wooden or metallic mass. They are not a cube; they are not like a cube; they merely suggest a cube to a mind that is conversant with its form. To place lines on paper in such a way as to suggest a cube, or any other mass, requires, in the first place, thorough knowledge of the object;

in the second place, considerable power of abstraction to detach the outline from the mass; and, in the third place, skill in representing the abstraction on paper. On the other hand, modeling in clay requires no effort at abstraction. It is simply the exact reproduction of a similar form in another and easily molded material. This reproduction necessitates exact observation, supplies accurate knowledge, trains the eye to see and measure, and the hand to execute, and thus prepares the mind for the effort of abstraction required in the pictorial art. Roughly speaking, then, we may mark off three steps in "form study and drawing," to which we have been slowly brought by the evolution of method: first, observation; second, making—clay and paper being the materials; third; drawing in all its forms.

As I have said, the combination of form study and drawing has taken deep and lasting root wherever there is a progressive spirit. But, like every other reform, this one has met and meets with serious opposition. The *vis inertiæ* of the unprogressive teacher may be always counted on as a strong force against which to contend; while public opinion is slow, though certain in the end, to rally to the support of improvement in educational work. In this case, attempts, well meant in some instances, mischievous in others, have been made to rouse public opinion against the reform. It was not enough to denounce "form study and drawing" as play, as an "ornamental branch," as an "educational fringe," whatever that is, but in many places where modeling in clay has been introduced in the public schools, the cry has been raised that it is a means of conveying contagious disease from one pupil to another. It is boldly claimed that the germs of measles, scarlet fever, and the other diseases to which children are heir, are conveyed in the clay that the children handle in school. When it is objected that this cannot be the case, because children suffering from such diseases are invariably excluded from school until all danger of contagion is past, the ground of attack is shifted, and we are told that, at any rate, skin disease, if such exist, is certain to be carried. To such an extent did opposition of this kind proceed in the city of Brooklyn, that recently the Board of Education ordered an investigation to be made. The evidence produced at this investigation is of interest, and may be of value, to other places in which similar controversies arise.

The committee to whom the investigation was intrusted desired to ascertain the experience of other large cities. For this purpose a circular letter containing a number of questions was prepared and addressed to superintendents, supervisors of drawing, and others in authority in the cities in which clay is now used. The list of cities included Chicago, St. Louis, Minneapolis, St. Paul, Indianapolis, Detroit, Denver, Newark, Washington, Boston, Brookline, Providence, Springfield, Mass.; Syracuse, Rochester, Alleghany City, Milwaukee, Hartford, Worcester, and a number of smaller places. The number of answers obtained was fifty-four, and as these emanated from the more important educational centers, it is not too much to say that the body of evidence thus brought forward settles the question and puts out of court those who raised the cry against modeling in clay.

The first question was: "Have you known of skin diseases being spread by the use of clay in the schoolroom in connection with teaching form study and drawing?" Of 54 answers, 50 were "No"; 2 were "Never"; 1 was "None whatever," and 1 was "No, never heard of such a thing."

The second question was: "Have you any knowledge of contagious diseases being spread by the use of clay in public schools?" The answers were: "No," 43; "Never," 10; "Used several years, never had a complaint," 1.

The third question was: "From your own experience or knowledge of that of others', have you ever known of any injurious effects to pupils, from the general use of clay in the schoolroom, as an aid and means in form study and drawing?" The answers were as follows: 39, "No"; 1, "Never in twenty years' use"; 1, "Never in seven years' use"; 2, "Never in five years' use;" 9, "Never"; 1, "Occasionally heard of chapped hands, when used in cold weather. Believe it might be avoided;" 1, "Heard of slight skin irritation which was only temporary."

In answer to the fourth question, which called for any general remarks the person addressed might desire to make, replies were obtained that show how deep-rooted among the educational minds of the country is the conviction that modeling in clay is not only the best means of teaching form, but the best introduction to drawing. I have space for only a few of these replies.

Superintendent Howland, of Chicago, says: "It (clay) is the best material for teaching form; cheap and perfectly safe."

E. J. Dimmock, Supervisor of Drawing in the Chicago schools, says: "Chicago teachers would not do without it (clay). Its worst opponents at first are now its best advocates. Used it six years. Have no trouble."

Colonel Francis W. Parker, of the Cook County Normal School, says: "Used clay twenty years. No injurious effects, except in the *minds* of persons who cling to 'readin,' ''ritin', and 'rithmetic.'

"Clay is the best material extant for the expression of the crude concepts of children.

"We had the same hue and cry raised in Chicago. I referred it to the Chief of the Health Bureau, who had an expert chemist analyze specimens of clay that had been used, and decided that there was nothing in it."

T. E. Riley, Supervisor of Drawing in St. Louis, says: "Clay is the best material for use in the schoolroom, as it furnishes the best means of developing and expressing ideas of form. It is plastic, cheap, and easily obtained.

"In several years' experience I have not known, nor learned from the experience of others, of any injurious effects from the use of clay in the schoolroom. Am told clay is quite extensively used as a surgical dressing, on account of its antiseptic qualities."

T. J. Richardson, Supervisor of Drawing in Minneapolis, says: "Have used clay for five years in public schools. Never heard of any injurious effects."

A. M. Laughlin, Supervisor of Drawing in St. Paul, says: "Used clay with a good many thousand children for the past nine years. From my own experience, or that of others, have never known injurious effects."

J. H. Brown, Supervisor of Drawing in Indianapolis, says: "Used ten years. Never any trouble with it."

Myra Jones, Supervisor of Drawing in Detroit, says: "Used several years. No complaints, directly or indirectly."

Charles M. Carter, Supervisor of Drawing in Denver, says: "Used several years. Can remember but one complaint. Never observed any bad results."

S. A. Fawcett, Supervisor of Drawing in Newark, N. J., says: "Clay, properly cared for, cannot be dangerous. It cleanses itself, is, in fact, a cleansing agent. . . . . I have seen the worst boys made orderly and quiet, and have never known its use to be abused."

I. Edwards Clarke, of the National Bureau of Education, Washington, D. C., writes: "No knowledge of any injurious effects being produced by use of clay in schools has ever come to me, which, as I have been for some years busied upon special reports relating to all phases of the industrial art education movements in America and Europe, is remarkable, if such effects have been at all general.

"Questions of ventilation, of drainage, of cleanliness, as affecting the health of children in crowded schoolrooms are, in my judgment, of real importance, while the idea that there is danger in the use of clay for modeling seems very fanciful and far-fetched."

Henry T. Bailey, State Agent for the Promotion of Art Education in Massachusetts, says: "No injurious effects from the general use of clay have ever come to my notice.

"It is a valuable means to teach form, to train pupils to be observant, to think connectedly and independently, and to give skill of hand.

"Clay is always considered injurious by lazy, ignorant, or 'self-trained' and unteachable school-keepers. I never knew a *teacher* who discovered objections to its use."

Superintendent Balliet, of Springfield, Mass., says: "The impression that contagious diseases may be spread or communicated through clay modeling is certainly not based on facts. It must be purely a theoretical objection. It is in my judgment impossible to do good work in form study and drawing without clay modeling."

Mrs. H. J. Carter, Professor of Form Study and Drawing in the New York College for the Training of Teachers, says: "I cannot feel that, with proper caution, there is any more danger to children in the handling of clay than in any other school material. Never heard of any injurious effects."

L. A. Adams, Supervisor of Drawing in Syracuse, N.Y., says: "Never any injurious effects to pupils in the schools of Syracuse. Its use, at the beginning, five years ago, met with some opposition, as was to be expected, both teachers and pupils being ignorant of the use and effect of clay modeling. It has long since ceased to be a mooted subject, and those who may have opposed its use are now among its advocates."

Henry Hitchings, Supervisor of Drawing, Boston, Mass., says: "Never knew of any injurious results from the use of clay in our schools."

Walter S. Perry, Director of the Art Department of Pratt Institute, Brooklyn, says: "With no other material can students get as quickly a complete knowledge of the form studied. It can be used for the expression of thought at an age when drawing would be too difficult for the child to master. . . . . I never knew any skin or contagious diseases to be spread by it, or any injurious effects resulting from its use."

At a meeting of the Department of Drawing, Association of Educational Workers, held at the Massachusetts Normal Art School, Boston, on June 15, 1891, the following resolution was unanimously adopted: "*Resolved*, that this association indorses the use of clay in public schools, and takes this opportunity to state that no disease resulting therefrom has come to the notice of this association."

Supported by such a "cloud of witnesses" as is here brought forward, the advocates of clay modeling can well afford to rest their case.

WILLIAM H. MAXWELL.

BROOKLYN, N. Y.

THE SCIENCE VERSUS THE ART OF TEACHING.

Professor Royce closes his admirable and scholarly article on "Is there a Science of Education?" by the somewhat unique statement[1]: "To sum it all up in one word: Teaching is an art. Therefore there is indeed no science of education." Although the major premise of his syllogism is wanting it can be inferred easily from the general trend of his preceding argument. If he means to say: Teaching is an art, no art is a science, therefore there is no science of education, the fallacy lies in the assumption that teaching is an art *merely*. Surely Professor Royce will not deny that education as well as logic may be both a science and an art. The distinction between these terms is, after all, as Mr. Mill has stated,[2] a merely verbal one. To insist that pedagogy can never become a science because many of its generalizations cannot be "universally valid," would rule out of the category of sciences nearly all, in fact, but mathematics. But this science, too, has its applied, or art,

[1] EDUCATIONAL REVIEW, I., 132.

[2] *Edinburgh Review*, No. 115.

side. Or, furthermore, if the term science is to be restricted to such departments of knowledge as have been quite fully investigated; then, too, several so-called sciences have been misnamed.

Professor Dilthey addressed himself to the question of the "Possibility of a *universally valid* pedagogical science," and the result of his inquiry, if negative, would hardly warrant the striking out of pedagogy from the category of "progressive sciences," which, to quote Professor Royce, are being constantly "modified by the course of evolution and by the actual social environment."

That the terms science and art are not mutually contradictory when affirmed of the same subject, I may quote from Plato:[3] "The art and science of making shoes." I may cite also Whately's definition of logic, approved by Mr. Mill,[4] which is "the science as well as the art of reasoning."

It would not be worth our while to traverse this issue had not the closing sentences of Professor Royce's article conveyed the impression that there was left no further room for argument. One had, therefore, to conclude that such works as Bain's *Education as a Science* and Rozenkranz's *Pädagogik als System* were wrongly named.

It is certainly a great satisfaction to many of us, who are struggling along on the art side of teaching, to believe that there is a correlative science of education which will finally be worked out and formulated for us by such scholarly and philosophic minds as that of the distinguished Harvard professor. At any rate we beg to be permitted, as long as we may, to use, without reproach, the convenient and dignified description, the "science of education."

It may be said also, in passing, that no more valuable contribution to educational science has appeared in late years than the very article by Professor Royce to which allusion has already been made. I believe, however, with Professor Royce, that for some time to come the most fruitful lines of investigation and of progress will be along the development of the art side of education.

Lord Bacon has defined art to be "a proper disposal of the things of nature by human thought and experience, so as to make them answer the designs and uses of mankind." It is, accordingly, as a means to an end rather than for the purely scientific value of our conclusions, that the unsettled problems of education should be investigated at the present day. The study of practical psychology, or "mental diagnosis," as Professor Royce so happily terms it, cannot be too strongly recommended. Theoretical psychology, as studied in the average High or Normal school, has been too often both barren and unprofitable, except, perhaps, as an intellectual gymnastic. Its discussions have, as a rule, been too far removed from the actual life and work of the teacher to serve as an important guide, either in aims or method, for the school-room. True, theoretical psychology has aimed to furnish teachers with certain guiding principles of a proper teaching method: but when the attempt has been consciously made by the young teacher to apply these principles in order to deduce practical working rules, difficulty has been encountered.

---

[3] *Theætetus*, 147.

[4] *System of Logic*, p. 18.

This difficulty in applying psychological theory has been due not alone to the inability on the part of the average teacher to comprehend the principles in their full content, but to a more fundamental reason; namely, that the psychological method, so-called, is not identical with the teaching, or pedagogical method, and must undergo in practice considerable modification. The latter involves certain factors not contained in nor considered by the former. The psychological method gives the natural sequence of mental acquisition, assimilation, and growth. It stops here. The pedagogical method goes further than this, and takes cognizance of the ends and means of education. It deals also with the subject matter of instruction; it considers the relative value of the different kinds of discipline and of knowledge, together with the conditions of social environment. Hence, to confine the study of scientific pedagogy mainly to an investigation of child life, as recommended by Professor Royce, will be far from answering the demands of the practical teacher. In fact, what the average teacher of limited knowledge and training most needs for her immediate guidance is not more psychology, theoretical or practical, nor, indeed, more "science" of any kind, but precisely formulated maxims, deduced from scientific principles, that will aid in the accomplishment of specific and clearly conceived ends. Let science be cultivated rather by those, like Professor Royce, who have the capacity and are the natural leaders; let the torch of science be held high to illumine the teacher's pathway, but let us not forget that the *common* teacher like the *common* soldier, cannot act on general orders, but must have direct and specific instructions in order to accomplish definite ends.

The prevailing criticism upon our schools, such for instance as that made recently by President Eliot, alleges that the average results (ends) of our best schools are comparatively slight and of small worth. The fact that the teacher does not understand the child is doubtless to some extent responsible for poor results, but only partially; one of the chief difficulties is, as we have said, the deplorable ignorance of what is and what is not *worth* teaching. That is, we need to study the objective side as well as the subjective side of education, or the relative values of studies in view of the future needs of the pupil as well as the processes and laws of mental growth, *i. e.*, psychology. It would be a mistake, therefore, to establish in our colleges and universities chairs for the teaching of psychology and theoretical pedagogy, solely.

Instruction in applied pedagogy, looking to the formulation of precise and practical maxims, having a scientific basis and school-room application, is very much needed. What to teach of mathematics, history, etc., and how to teach for clearly defined ends are and must continue to be the most vital and important questions for pedagogical study. Hence, it is no exaggeration to affirm, with Spencer, that the chief need of our schools is some standard by which to measure educational values. This is a department of study and research that has been too much neglected. It is not sufficient to know, in a general way, that some studies, say for instance elementary arithmetic or language, have a practical value; while history and geography have a culture value mainly. This is not enough.

The distinction is an important one. Teachers should know the comparative values of studies and that, too, not as wholes merely, but of specific topics and classes of facts, how and to what extent valuable either as discipline or information. When President Eliot stood before a body of school-men such as greeted him last year at Worcester, and affirmed his conviction that it was a waste of time to teach the capitals and boundaries of the States of the Union, he was applauded. How could it be otherwise? Everybody admits that a great deal of useless rubbish is taught in all our schools. And what is the remedy? Surely no general condemnation of the practice has yet been adequate to stop it, so strong is the power of habit and tradition. The remedy must be found, if at all, in a better appreciation on the part of teachers of the relative values of subject matter for its practical, disciplinary, or culture ends. As a rule no effort is made in our elementary and higher schools to grade information according to any standard of relative values. All the topics of arithmetic, of history, and of geography are taught by most teachers as of equal or nearly equal importance. As a proof of this, witness the kind of questions generally called for upon examinations in our best schools and colleges; consider also the specific values attached to questions of various sorts. The absence of any just standard for determining relative values will be apparent everywhere.

This leads to the statement that when the broad distinction is made between studies that have a culture value mainly, and those that have a practical value merely, a sharply defined difference of method should be adopted in teaching. For example: whatever is needed for the uses of daily living should be so well and thoroughly learned that the processes, mental or physiological, should become automatic. We learn to walk, to move the arms and hands, to articulate, etc., so as to perform the normal acts automatically and without conscious effort. So the mental and physical processes of reading, and largely of writing, and of combining small numbers, etc. By frequent repetition all these acts become thoroughly mechanized, and the wise teacher will see to it that her instruction reaches the point where useful acts become fixed and invariable habits. The mistake is made when history and geography, which are essentially culture studies, are taught with the same end in view, to wit, the absolute fixing of this information by frequent repetition, so that it is reproduced with ease and certainty.

It was Voltaire, I believe, who said facetiously that all the geography a girl needed to know was "how to find the northeast bedroom," and all the chemistry, "how to make a kettle boil." We may be willing to extend Voltaires's categories of necessary information, but to treat all facts as of equal, or of anything like equal value, and to seek to reduce them to the automatic memory is the most common error in teaching. It exhibits a failure to estimate either the true ends of teaching or the relative values of different kinds of knowledge.

In general the method to be pursued in teaching practical studies, as distinguished from culture studies, may be broadly described as follows: the principle of the former should be that of repetition until certainty of automatic reproduction is secured. In all operations with the small numbers, in reading, spelling, etc., the end should be absolute memorizing—no half-way results; in other words, to mechanize the processes so completely as to relieve the mind from all conscious effort. Perfect and absolute memorization then, is the rule for practical studies.

But in culture studies, not so. Here the principle is that of unconscious absorption. For illustration: one may read a story by Scott or Dickens and unconsciously absorb the whole plot and development, and be profoundly and permanently impressed thereby, while having made no conscious effort to memorize any part of it. So all culture studies that have in view the enlargement of the intellectual horizon, the development of the sensibility, and the guidance and control of the will, should be studied upon the absorptive principle and never by forced memorizing, as though they were practical studies.

The carrying out of this principle would modify the teaching of geography, of history, and of literature to a remarkable extent. Instead of making the immediate end of such study the power to reproduce from memory certain facts, the aim should be rather to secure such a reaction upon the mind of the pupil as would enlarge the mental perspective, broaden the sympathies, strengthen the will, exalt the sentiments, and in general, conduce to the development of intelligence and character.

ADDISON B. POLAND.

JERSEY CITY, N. J.

VI.

EDITORIAL.

The argument of President Walker in regard to the education furnished by the American scientific schools, which appears in this issue of the EDUCATIONAL REVIEW, made up the major portion of his eloquent and striking address at the University Convocation at Albany. To graduates of literary colleges, and to teachers in those institutions, President Walker's conclusions may at first sight seem very radical, but it will be found a task of great difficulty to controvert them. It is hard for those accustomed to another order of things to understand that a deepening and widening civilization has altered the content of education—or better, has broadened it—while retaining its form. The objects and ideals of intellectual and moral culture are the same that they have always been since systematic education began. But the path to this goal is no longer a single or a narrow one. Science, as well as letters, history as well as philosophy, can afford that mental discipline and culture that the world prizes so highly.

It is not impossible, however, that President Walker has too constantly in mind the admirable institution over which he himself presides, in making his generalizations. Even the school of science or technology needs in its curriculum some instruction in the English language and literature, in history and in economics. The Massachusetts Institute of Technology furnishes this; but the same cannot be said of many other schools of similar character. The fault of the technically trained man in this country too often is that he knows nothing but his technique. His intellectual sympathies are narrow and his vision limited. It is of the essence of the old humanities to guard against these faults, and for that reason literary and historical studies should have some representation in every scientific or technical course of study.

After considerable delay, the managers of the World's Columbian Exposition have appointed a director of the department of liberal arts, which, in the classification adopted, includes education. It is highly creditable to the intelligence and good judgment of Director-General Davis that his nominees should have been such competent and representative men as President Daniel C. Gilman, Professor Herbert B. Adams, and Dr. Selim H. Peabody. Neither President Gilman nor Professor Adams felt able to accept the position, and while their decisions were greatly regretted, the acceptance of the place by Dr. Peabody renders it certain that education will occupy a dignified and important place at the World's Fair. Dr. Peabody has just retired from the presidency of the University of Illinois, and will, it is understood, be able to devote his whole time to the organization of the department of liberal arts.

On March 28 next occurs the three hundredth anniversary of the birth of John Amos Comenius, one of the greatest and most practical educational leaders of all time. In Germany elaborate preparations are making for the celebration of the event. A similar movement has been organized in this country, and appropriate exercises will be held at Columbia College, in March next, under the auspices of the department of philosophy and education in that institution. The committee having the matter in charge are: Dr. William T. Harris, Commissioner of Education; Professor Herbert B. Adams, of Johns Hopkins University; Professor Paul H. Hanus, of Harvard University; C. W. Bardeen, of Syracuse, N. Y.; Rev. Edward Rondthaler, of Salem, N. C.; and Rev. Robert de Schweinitz, of Bethlehem, Pa.; together with the professor of philosophy in Columbia College.

It may fairly be doubted whether three more successful educational meetings were ever held than those of the American Institute of Instruction, the New York University Convocation, and the National Educational Association in July last. The attendance at each was very large, and the tone of the papers and discussions was healthier and more serious than usual. As was quite generally predicted, the experiment of holding Round Table Conferences of specialists in connection with the general meeting at Toronto was very successful. They are to be introduced hereafter at the meetings of the

Department of Superintendence and the American Institute of Instruction. The most obvious criticism on the Albany meeting is that too many subjects were placed on the programme, and the rules as to five and ten minute speeches, which were so frequently and emphatically announced, were not enforced until late in the meeting. In 1892 neither of these criticisms should be possible. At Toronto the generous hospitality of the Canadians made everything run happily and smoothly, and the social side of the meeting was unusually pleasant and helpful. To Minister Ross, and his deputy, Mr. Millar; to Principal Kirkland; and above all to the tireless energy and unfailing thoughtfulness of Inspector Hughes, the National Association owes a lasting debt of gratitude.

A new and very important step was taken at Toronto at the first meeting of the new Board of Directors of the National Association. A resolution was introduced, and unanimously carried, authorizing and directing the President to appoint a committee of three to consider and report a plan by which some portion of the annual income of the Association may hereafter be devoted to encouraging and rewarding original investigation and research in the field of education. The committee as appointed, consists of Nicholas Murray Butler of New Jersey, William T. Harris of the District of Columbia, and James H. Baker of Colorado.

The opinion was strongly expressed at Toronto that the time has come when the Association should assume the responsibilities attached to its great size and importance. The mere reading of papers and holding debates is not enough. The Association should assume the responsible leadership which belongs to it and become the patron of pedagogical scholarship. The Association stands not for the lower or the higher education, but for united education. Its broad view takes in the whole series of institutions from the kindergarten to the university, and it esteems the one as highly as the other. It can and should do for American education what the Institute of France and the Royal Society do for literature and science in their respective countries.

Signs multiply that education is exciting greater interest and attracting more attention among the public at large than was formerly the case. One evidence of this is to be found in the fact that periodicals of general, not special, circulation, and of a popular character, find it worth while to devote special and intelligent attention to educational thought and progress. One great weekly paper, *The Christian Union*, has lately undertaken to furnish a general review, once in each month, of the educational movement at home and abroad. Another, *The Independent*, has recently given over the greater part of an entire issue to educational papers of pith and power. Events like these signify something, and the teacher may well be pardoned for feeling that the eyes of the public are upon him and his work. This of itself is a stimulus to higher ideals and renewed efforts.

A truly remarkable admission with regard to the work of the Boston schools is made by Superintendent Seaver in his last annual report. Mr. Seaver tells us that the instruction in Elementary Science which has formed, for the past nine years, part of the course of study in the schools under his charge, has been, and is, except in a comparatively few cases, practically a failure. His own words are : " The important matter to which we all need to turn our thoughts is how shall the studies classed under ' observation lessons ' and ' elementary science ' be promoted in our schools. For it must needs be said that whatever may be the excellences of our schools in other respects, they are in respect to these nature-studies gravely deficient both in method and in results. The late Miss Crocker, after years of most painstaking and faithful labor to promote these studies, patiently instructing the willing teachers in the best methods, and seeking to inspire the indifferent or unwilling with an interest in the matter—after all this, was unable to point out more than a very few teachers who were doing satisfactory work, while the majority were making no attempts whatever. There has been, so far as I can learn, but little improvement since. The normal school has never influenced its pupils in a way to interest them much in natural science. The so-called "teachers' school of science" has given interesting instruction in natural science to the teachers who chose to attend ; but little of that instruction has been directly helpful to these teachers in their schoolroom work. And so it remains a fact that the sciences—

particularly the natural history sciences—have very little lodgment in our current school work, notwithstanding the appropriation of time made for them in the course of study for some years past. And this statement must be made more than a generation after the great Agassiz began his work of promoting an interest in the study of natural history among all people, all schools, and all teachers!"

It is much to be regretted that Superintendent Seaver does not assign the cause for this truly deplorable condition of affairs. The only remedy he suggests, in addition to exhorting teachers and pupils to collect specimens—zoölogical, mineralogical, and botanical—is that "a moderate sum of money be appropriated each year for the purpose of supplying the grammar and primary schools with suitable material for natural history lessons."

Superintendent Seaver's candor is worthy of all commendation. If all superintendents and all presidents of boards of education would state the exact truth about their schools, as he has done, school work would make much more rapid progress than it is now doing. For paralyzing effort, for dampening enthusiasm, for clogging the wheels of reform, there is no other single influence equal to the report of a superintendent or a board president who does nothing but sing the praises of his schools.

For half a century the Boston public schools have borne the reputation of being among the best in the country. There is nothing in Mr. Seaver's admission that need detract from that reputation. If the truth were told, his words would be even more applicable to every other large city whose course of study embraces elementary science. A very few teachers do the work admirably; the great majority are "making no attempts whatsoever." Probably Mr. MacAlister was right, when, as superintendent of the Philadelphia schools, he declined to recommend elementary science as part of the course, on the ground that the teachers were, as a rule, so ignorant of the subject as to be unable to give the lessons with any degree of effectiveness. And does not this furnish a clew to the cause of the comparative failure of the teaching of elementary science? Is it not to be found in the lack of knowledge on the part of the average teacher with regard to the subjects taught?

No man is competent to write a primer on any subject who is not master of the whole. And in like manner no one is competent to give a series of observation lessons on plants, let us say, who has not an extensive scientific knowledge of botany. For the lack of scientific knowledge, and the lack of skill in imparting such knowledge, the high schools are very largely responsible. As a rule, the high school course provides the merest smattering in each of the natural sciences, and imparts a thorough knowledge of no one science. In many high schools, moreover, the plan of teaching science is simply the memorizing of a text-book without laboratory work for the pupils; or at best, lectures with experiments made by the lecturer. Thus the teachers come to their work in the class-room without sufficient knowledge and with methods vitiated by bad examples. Under these circumstances it is not surprising that the teaching of elementary science in public schools should be a comparative failure.

The entire blame, however, should not be laid upon the unfortunate teacher, who in most cases does the best she can under the conditions. These conditions are often very unfavorable. The board of education gives her a course of study that it is next to impossible to execute, while it fails to supply the material with which she should work. There is a magnificent opportunity for some one with the requisite, knowledge and the requisite skill to work out a course in elementary science, such as has been made for form study and drawing, that will exercise children's hands as well as their eyes; that will train the executive, as well as the perceptive powers.

During the session of Parliament which ended in August, the "Elementary Education Act, 1891," as it is to be called, passed both Houses, received the royal assent, and became a law. The full text of the Act, as it received the Royal Assent, is printed elsewhere in this issue. Its political effect is not yet certain, although it was unquestionably formulated and passed by a Conservative government in the hope of gaining political strength at the ensuing general election. Its educational effect is foreshadowed by the attitude toward it of the managers of the voluntary or denominational schools. They saw in the bill a distinct step toward free, public, secular education, and those of them who saw that its passage was inevitable, struggled hard to conserve, as far as possible, their own interests. In this they were unquestionably successful, and no immediate danger hangs over them. It is, however, not difficult to foresee that when the Liberal party regains power, a strong and probably successful demand will be made for legislation that will put the expenditure of the public funds devoted to education in the hands, not of committees chosen by bodies of subscribers, or of church members, but of representatives chosen by the ratepayers. When this stage is reached, the crisis in England's educational history will have arrived. The country must then decide whether its permanent policy will be the assistance of voluntary effort in elementary education, supplemented by free secular schools, where voluntary effort fails or is insufficient; or the erection upon new administrative lines of a school system similar to that of the United States, which discourages or forbids the expenditure of public funds by other than public officials.

After long discussion and patient waiting a plan has been adopted and will be carried into effect, for the establishment of a Teaching University for London. This greatest of capitals has never been a university city, and its many and various institutions for the higher education have been independent, and in some measure competitive, organizations. The titular university of London, which is now in existence, is an examining and degree-conferring body, like the University of the State of New York. The Senate and Convocation of the existing university have behaved rather churlishly, as it seems at this distance, in regard to the new movement.

They should have given their name and whatever prestige they possess to it. On the contrary, they have not only obstructed it in every possible way, but have protested, it seems successfully, against the use of the name London in the official designation of the new institution. This is so ridiculous and illogical, that one is surprised to find it allowed even by so steadfast a champion of vested rights as Her Majesty's Privy Council. The teaching university, then, is to find a new name for itself and one in which the word London does not appear. It is to be formed by a federation of Kings and University Colleges, and the several medical and scientific schools and institutions now in existence. It will from the outset represent no inconsiderable amount of wealth and dignity, but it enters upon its pedagogic career as an unknown quantity. If its success is commensurate with its opportunities, it will eventually rank with the great city universities of Berlin, Paris, and Munich.

The EDUCATIONAL REVIEW begins in this issue the discussion of two subjects of practical importance at this time: the function and character of city school supervision, and the scope and usefulness of practice teaching in normal and training schools. Both subjects appeal directly to the interest of thousands of teachers, and both need the light of a fuller and richer experience thrown upon them. The discussions will continue for some months, and those who have been invited to take part in them are teachers to whom all their colleagues will be ready and glad to listen.

VIII.

REVIEWS.

The Philosophical Basis of Evolution.—By JAMES CROLL, LL. D., F. R. S. London: Edward Stanford, 1890, pp. 198.

The late Dr. James Croll was in many respects a remarkable man, and the present little book, his last effort, is most characteristic of him. An earnest geological worker, he was also no mean mathematician and astronomer, and he was strongly tinctured with that love of metaphysics which is characteristic of so many hard-headed Scotsmen. The prevailing doctrines of evolution naturally attracted his attention, and many years ago, in his book "The Philosophy of Theism," and later in magazine articles, he endeavored to direct attention, in connection with these doctrines, to the violations of the great principle of causality—"Everything that comes to pass must have a cause"— involved in many of the discussions of those enticing and all-engrossing theories. His protests on this ground, however, though they attracted the attention of many thinking men, were necessarily, to the multitude, but as "the voice of one crying in the wilderness." The present book may be regarded as a last effort to bring back the attention of thinkers to what he considered to be fundamental principles, and possibly at this moment, when the current crude ideas are being so rudely shaken, the Scottish geologist's appeal to common sense may have some weight.

With Croll, evolution is more narrowly defined than with many writers. The evolution in which he believes is the succession of events in time whereby "a gradual transition has taken place from the simple to the complex, from the homogeneous to the heterogeneous, from indefinite to the more definite," and this under the domain of causality. Viewed in this way, rational evolutions should consist of series of ascertained sequences, as for instance those which occur in the evolution of a plant from a seed or an animal from an egg. These are matters of observation, and what science and philosophy have to do with them is to ascertain their true, efficient causes. Here he finds that there is great diversity of opinion, and that many evolutionists regard the process as purely mechanical and physical, or the result of matter, motion, and force alone. This he holds to be a mistake, and defines the object of his treatise to be to show that it is absolutely impossible that " the process of nature can ever be accounted for without going beyond what is to be found in matter, motion, and force." He illustrates this by a reference to the great importance now attached to molecular motion in all physical questions, and by calling attention to the fact that in such molecular motions the essential question is not as to the fact of such motions, but as to the causes determining their direction. Hence the reasoner, who in explaining any evolution or development is content to limit his view to the mere forces involved, must necessarily fall short of any philosophical comprehension of the causes of the changes taking place. If, for instance, the molecules of a substance pack themselves together and form a regular crystalline form, it will not do to refer the evolution of such a form merely to attractive force ; we must also consider what determines the action of such force in a manner to produce crystals of different forms in different substances, and in the same substance under different external conditions. Thus in the simplest kinds of development very complex and far-reaching questions occur, and these become complicated in an extreme degree in the development of organic forms. This great principle of determinism he thinks has been too much overlooked ; and thus, as the writer of this notice has frequently maintained, the existing theories of evolution have degenerated into partial and imperfect explanations, and in many cases to a species of reasoning in a circle in which the end to be attained becomes the efficient cause of a process for its own attainment, and in which the complicated directions and determinations of energy are altogether overlooked. Nor is the idea of determination a new one, for I remember how strongly it was insisted on, before the rise of Darwinian evolution, in Dr. Chalmers's lectures on natural theology ; and Croll quotes many other eminent names in its support.

A simple illustration of this fallacy is afforded by a consideration of the development of heat, light, and mechanical force from the explosion of gunpowder, and of the forces and determinations of force involved in this. The explosion we may say was caused by the application of a spark of incandescent matter, but to remain content with this explanation would imply a most superficial view, and even here we should have to consider the causes which determined the application of the incandescent spark, be it match or electric current, at the time and in the way in which it occurred. The cause of the explosion was in fact the chemical combination of certain substances previously existing in a state of fine mechanical mixture. Chemistry readily explains to us how this occurs, and can calculate the exact amount of the resulting force, and the precise states of combination of the several elements after the explosion. But behind all this we have the production of the carbon by vegetable life and organization; that of the sulphur perhaps by volcanic sublimation or by the aqueous decomposition of sulphates; and that of the nitre by the formation of nitric acid in nitre heaps or nitrous soil. All these must precede the mechanical mixture of the substances in our pound of gunpowder. But after all this, we have not touched the most serious question of all: what determined the mixture of all these materials in the exact proportions and conditions of aggregation necessary to produce the properties of the gunpowder. If, in short, we are ignorant of the mysteries of the powder-mill, neither the explanations, however clear, of the spark evolutionist, the chemical evolutionist, or the mechanical evolutionist can give us any real explanation of the manner in which potential energy was stored up in the villainous compound in order to give it explosive power.

But the explosion of gunpowder is itself an efficient cause, subject to determination. Our pound of powder is placed in a cannon with a ball in front of it, and the gun is so pointed and elevated as to drive the ball against the wall of a fortress which it breaches. Here the effects produced are determined among other things by the form of the gun, by the skill of the gunner, by the plans of the besieging general, by the exigencies of a war depending on the most complex political considerations. Clearly, the chemical and mechanical composition of gunpowder will not go very far to explain these determining causes, though, if Croll's views as to determinism be correct, many of the highest authorities on evolution tacitly assume that they do. They certainly do so when they take for granted that the complex determinations of molecules necessary to produce the structures and functions of plants and animals can be explained merely by the interactions of chemical and physical forces.

He applies these considerations to life and vital force, and shows that whether we regard vital force as distinct altogether from other energies or as merely a modification of some of these, we cannot account for life and organization without taking into account the determinations of motion involved.

Applying these principles to current theories of evolution, he gives some of them the credit of recognizing the principle of determination, though in an imperfect way. Natural selection, for example, if it means anything more than a figure of speech, or blind chance, must refer to determinations by which certain structures or modifications of structure are selected and perpetuated, and others destroyed. But natural selection gives no explanation of the actual determining causes. As applied to the succession of animals and plants, it can mean nothing more than the destruction of those least suited to the conditions of their existence. It can itself produce nothing, nor can it determine the direction in which the development is to proceed. In the development of an eye, for example, it gives no explanation of what first determined the production of an organ intended to place the animal in relation to the undulations of light. It gives no good reason why these organs, when produced, are continued. It is not an efficient cause of any improvements of or additions to the organ. It can only have the effect of eliminating those animals which have, relatively to their needs, the least efficient eyes; and even in this it cannot explain what determines the path in which the developments shall proceed, or how this may be balanced or counteracted by other determinations, as for instance by swifter limbs or better teeth and claws possessed by animals less perfect in sight.

To return to our previous figure: The balls fired at the wall may in the first instance fall short of it, or pass over it, but the gunner raises or lowers the piece till he gets the exact range. Even if we take the skill of the gunner here to represent natural selection, this is only one factor in the great chain of determinations necessary to secure the result that the gun shall play upon the wall and breach it.

Our author, of course, feels that determinism means design and necessitates theism. He postulates as the necessary ultimate determining cause, an " Eternal God," without whom we can never have a rational and complete system of nature, whatever value may be attached to secondary causes, which must result from his determination.

Some details of this question he notices very ingeniously. Natural selection, he shows, cannot dispense with design, otherwise it becomes mere chance, which can effect nothing, or is reduced to a figure of speech. That an effect necessarily proceeds from its cause is no proof that the cause was not designed to produce it. The infallible accuracy of a rifle bullet is no evidence that the rifle was not designed to produce accurate firing. Natural selection cannot produce organisms, it can only modify those already produced. In so far as it has any efficiency, this can be only as a police force restraining and suppressing offenders. The apparent waste and destruction of germs and of living beings in nature, is no evidence against theism. It is on this, indeed, that we depend for the sustenance of a varied animal life, and for the maintenance and extension of all organic life in times of great geological vicissitudes. If a field could produce no more seed than what would barely suffice for next year's sowing, what would have become of agriculture? Civilized man himself could not in that case have existed. Even savages and wild animals would be constantly diminishing their food supply, and probably the earth would be in great part a desert. Various degrees of complexity and perfection are no evidence against design, for only in this way could the vast variety of kinds of life, and their suitableness for all situations, be produced. Rudimentary organs are no evidence against design. In many cases we have no proof that they are not useful, and any theory of evolution would necessitate their existence as the preparation for farther development or the means for enabling useful purposes to be served in certain coming contingencies. It would be no evidence against design to find in a machine certain parts at present not used, but intended to come into action in certain foreseen emergencies. Nor is the modification of similar structures to serve different ends an evidence against design. We do not ourselves always secure a new end by a new or different process, and we regard any invention, applicable by modification to many different ends, as on that account all the more remarkable as an evidence of intelligent plan.

Finally, Croll ventures to apply, not without success, his principle of determinism to the vexed questions of human free will or necessity. Into these I cannot follow him, but may remark that he shows much thought and extensive reading on the subject. The whole work is not a large one, only 198 pages of moderately large type, and well deserves the attention of thoughtful students.

J. WM. DAWSON.

McGILL COLLEGE,
MONTREAL, CANADA.

Teaching in Three Continents: Personal Notes on the Educational Systems of the World.—By W. CATTON GRASBY. London, Paris, and Melbourne: Cassell & Company, 1891, pp. xv., 344.

Dr. Harris introduces this book to American readers in a characteristic preface. The author has traveled extensively, observed intelligently, and recorded his observations with unusual accuracy. His book has no literary style and pretends to none. It is a series of notes arranged topically. Mr. Grasby say so little of French and German schools that what he does say might as well have been omitted. The chief value of the book for American teachers consists in the information it contains concerning education in Australia, and its criticisms on school work in the United States. The latter are based, almost if not entirely, on the school work as seen in the Northern states; and, indeed, in the richest and most progressive of these. To use Mr. Grasby's own description, "The total area of the states with which I deal is about equal to that of Queensland, the third in size of the Australian colonies; and the population, roughly speaking, is somewhat greater than that of the British Isles" (p. 10).

That Mr. Grasby is an intelligent critic is shown at once (p. 21) when he puts his finger upon the lack of compulsory education, and of well-trained teachers, as the two weakest spots in our national educational armor. He notes, from time to time, a number of ways in which these two great weaknesses make themselves felt.

New York City comes in for a gentle rap or two, and the following passages are commended, without prejudice, to the attention of those whom they most concern. "The city of New York must not be taken as an example of the system followed in the United States generally. It is the result of the extreme application of a method found very effective elsewhere. Some writers have fallen into the error of considering that the same judgment of the schools of the United States may be formed from the schools of New York, as may be in the case of England from the Board schools of London. The English authorities estimate the value of a school by what they consider the results, while those of New York do so by the way in which the teachers carry out the directions of the teacher's manual. Speaking generally of America, it may be said that the machinery and methods are more valued as means of judging the work of the teacher, than are the measurable results obtained (pp. 56, 57)." "[In New York] there seemed to be so great a desire for me to see what they thought good, with a corresponding apparent disinclination to allow me to see what I wished, that I found it profitable to spend less time in the Empire City than I had intended. I came to the conclusion that there is more system and less education in New York than in any other city of the Union I had visited" (pp. 240, 241).

Mr. Grasby writes with full appreciation of the newer educational movements in this country, and his comments on the manual training, the teaching of elementary science, form study and drawing, and the kindergarten, are both discriminating and sound. The American teacher is praised for reading Herbert Spencer, Froebel, Horace Mann, Joseph Payne, Pestalozzi, Sully, and Fitch, while his English cousin is contented with "How to Gain 100 per cent. in Arithmetic," "How to Prepare for Examination," etc. (p. 174). The country is certainly to be congratulated if the movement to induce teachers to read the real literature of their profession has progressed so far as to attract the attention of the foreign visitor.

What the author says about education in Australia is very interesting, and should be read carefully. The United States is not the only new country that is endeavoring to work out its own educational salvation.

N. M. B.

A Dictionary of Classical Antiquities; Mythology, Religion, Literature, and Art.—From the German of Dr. OSCAR SEYFFERT. Revised and edited with additions by HENRY NETTLESHIP and T. E. SANDYS. New York: Macmillan & Company, 1891, pp. 706.

This is essentially a translation, and a good one, of Seyffert's *Lexikon*, which is a very useful book. Its peculiar usefulness appears to consist in combining into one convenient and reliable book of reference the material usually sought in two or three. Under one continuous alphabetical arrangement, titles are grouped which represent the different provinces of literature, mythology, religion, art, life and manners, and political institutions; *e. g.*, Æschylus, Agamemnon, Ares, Agriculture, Amphora, Atrium, Artillery, Atimia, etc. Biography is included so far as it has connection with literature, art, or religion; thus there is an article on Julius Cæsar, but not on Pompey the Great.

The service of the English editors, apart from the translation, consists first in the addition of many illustrations chosen, on the whole, with good judgment, though still somewhat sparingly, from essentially the same repertory as that used in *Baumeister's Denkmäler.* That these pictures are scarcely ever alluded to, much less explained in the text, is characteristic of the perfunctory manner in which the editing has in general been done. Changes and additions in the text are few and slight. By far the most of these are done by Dr. Sandys, and these are chiefly in the field of art. Thus he has written entire articles under the headings *Olympicum*, *Torentic Art*, *Vases*, *Mosaics*, *Pauson*, *Mentor*, *Mys*, *Stephanus*, *Polycleitus*, and *Philo.* The additions to existing articles are mostly unimportant ones. The citation of passages from ancient authors, which have been inserted here and there, especially in the latter portion, are too fragmentary and too unevenly chosen to be more than an incumbrance to the text. Vastly better would have been a short bibliography of authorities at the end of all the important articles, such as Dr. Sandys has added to his articles on *Torentic Art*, *Vases*, *Olympicum*, and *Mosaics.* As a sample of the editors' zeal in "bringing the articles up to date," attention is called in the preface to their use of the newly discovered *Constitution of Athens* in editing certain of the articles, especially that on the *Solonian Constitution.* Turning to that article, we find this use limited to an eight-line paragraph at the end, which promulgates the Aristotelian information that Solon reduced Draco's council of 401 members (who were selected by lot) to 400, and "extended in some particulars the powers already possessed by the Areopagus." This, as well as the foot note on page 693, illustrate the superficial way in which the opportunity of "bringing up to date" has been employed. There were surely things enough to correct. To illustrate: under the headings *Chiton*, *Clothing*, *Peplus*, the investigations of Studniczka, which make the historical relations of *Chiton* and *Peplus*, in the development of the Greek costume, perfectly clear, and which should have caused a thorough recasting of these articles, are utterly ignored. There is generally in Seyffert's book a lack of the historical treatment. The Greeks of the heroic, of the classical, and of the Roman period are all jumbled together into one mess, out of which a picture can be made only by a sort of pedagogical *Gleichmacherei*, that smacks strongly of the Prussian gymnasium. For anything this book tells us, the Greeks of all periods and all purses dwelt in a very symmetrical house, "designed by Guhl." The old cut-and-dried view of Demosthenes' political character is served up without deviation from the orthodox grammar-school standard. Demosthenes is judged by what he says of himself, and Æschines by what Demosthenes says of him.

The hoariest etymologies are given without the slightest indication of doubt. Thus, under *Amazons*, we are told the word means "breastless," though the illustration testifies against it, and the quantity of the second syllable is marked duly long. We wonder it has never occurred to any credulous etymologist to derive the word from *μᾶζα* and make it mean "johnnycakeless"; it were a far better etymology than the other, for there is no proof that the Amazons ever ate *μᾶζα*. *Seisachtheia* is explained by the etymology the ancients loved so well, "the shaking off of burdens." This is a regular "sparrow-grass" etymology. The word Leitourgia (Liturgia) is, to begin with, a false spelling; the vowel of the first syllable is Eta, but that is excusable as compared with the etymology, "service performed for the public," which merely repeats the ancient but hopeless absurdity of coupling *leito-* with λεώς "people." It is time that Greek antiquarians came to recognize the general principle that it discredits rather than recommends an etymology to find it acceptable to an old Greek grammarian. The word seems to have originally meant "volunteer-service"; at least, that is an etymology of the word which can be scientifically defended.

It is not difficult, I allow, to find in any book of reference like this an abundance of points for criticism, but the points here selected are representative. It is a fault of the entire work that it does not free itself from the swaddling bands of the traditional school-lore.

BENJ. IDE WHEELER.

CORNELL UNIVERSITY.

Notes on English Literature.—By FRED. PARKER EMERY, Instructor in English in the Massachusetts Institute of Technology, Boston: Ginn & Co. 1891., pp. xiv, 155.

Whoever invents the ideal method of teaching English literature will deserve a premium. The author of these *Notes* has based his work on the principle that "literature is learned by reading it and studying it, not by reading about it and studying about it." This is undoubtedly the correct principle, but that the two are inseparable may be inferred from the fact that in the very next page the author uses the expression, "It seems much better that [the student] should thoroughly learn about the few great writers than learn a little about all." The book is, then, in the author's own words, "merely a syllabus of a series of lectures on this subject, not by any means complete, but including only the most important and noteworthy writers of each period." It is an attempt to introduce the student to literature itself, and that the best literature; a praiseworthy aim, the aim of all teachers of literature, and it is to be welcomed as a help to this end. It consists of a brief introduction, descriptive of the author's plan, and ten chapters from the Anglo-Saxon to the Victorian Age, followed by a course of representative readings and Sir John Lubbock's list of the one hundred best books. On the margin of each chapter is a chronological summary of the chief historical events of the period, and the first paragraph of each chapter relates to the history and society, or the politics and society, of the period, thus attempting to illustrate the author's principle that "history and literature should be studied side by side;" a good principle, but students should know something of English history before they begin the study of English literature. The limits of this notice will permit but a few brief remarks on certain points in the execution of the plan. Under Cynewulf we miss the *Elene* and the *Juliane*, to say nothing of other poems attributed to him. Walter Mays wrote his three chief romances in French prose, not in Latin. That Ormin's rhythm is nearly perfect might have been added. As to the so-called Sir John Mandeville's *Travels*, consult the Encyclopædia Britannica, vol. xv, and a recent article in the April Number (344) of the *Quarterly Review*. While Wyclif's Bible as a whole was first printed by Forshall & Madden, in 1850, the New Testament was printed by Lewis in 1731. Some misprints and oversights may be noted in passing, but it is almost impossible to avoid them in any book: 1559 (p. 12), 1325 (p. 131), 1412 (p. 17); the House of Lancaster did not supersede "the Plantagenets" (p. 16); 1774 (p. 18); "Episcopal" should be "Anglican" (p. 20); Sir Thomas Wyatt the elder was the poet, and he was not "beheaded for treason," but his son met that fate—this error is found in other books on English literature; "Dionysius" should be "Dionysus" (p. 31); *The Pardoner and the Friar* is not a mystery, but one of Heywood's Interludes; *Gorboduc* is not "thoroughly uninteresting" (p. 32), *mejudice*, but this is a matter of taste; the Blackfriars was not the "first regular licensed theater," (p. 33); and some of the "post-Shakespearian" dramatists were "pre-Shakespearian." But I have space left only to note the omission of the Restoration dramatists, and of the poets, Thomson, Collins, and Gray. We cannot spare the last two, even in a brief course. Some other misprints and omissions have been noticed, but they can be easily corrected, and in the hands of an industrious teacher the book will serve well its purpose as an introduction to the study of English literature. The author has done well to include no living writer under fifty years of age: time has not yet settled the position of living writers, and posterity may reverse the judgment of contemporaries.

JAMES M. GARNETT.

UNIVERSITY OF VIRGINIA.

Principles of English Etymology: Second Series, the Foreign Element.—By the Rev. WALTER W. SKEAT, LL. D., Elrington and Bosworth Professor of Anglo-Saxon in the University of Cambridge. New York: Macmillan & Co., 1890, pp. xxxi, 505.

There are few persons qualified to deal with the subject of the principles of English Etymology as is the well-known author of the Etymological Dictionary; yet Professor Skeat claims his *Principles* to be "no more than a mere outline, perhaps an imperfect one, of the history of English from an etymological standpoint." The purpose of these two volumes, the second of which has just appeared, is perhaps best learned from the words of one of the concluding chapters (Second Series, p. 441); it is "to supplement and in some instances to correct the etymologies given in the author's larger and concise Dictionaries. The chief endeavor is to formulate some of the phonetic laws by which changes in the forms of words have taken place, so as to enable the student to trace for himself the history of a given word with some degree of accuracy." A word in regard to the scope of the work may now be added.

The first volume of the *Principles* (1887) deals mainly with "The Native Element" in English. Under this head were comprised all the Teutonic elements in the English tongue; the Latin and Greek elements introduced into the speech during the Anglo-Saxon Period were for convenience included; the less numerous Celtic elements absorbed at various dates were added. In this new volume, "Second Series, the Foreign Element," the plan is further carried out.

The term "foreign element," as the author notes, is used necessarily as a somewhat broad designation. It is employed in the present treatment of the sources of our vocabulary to denote (1) words of French origin; (2) words derived immediately from the Latin and Greek later than the Norman Conquest; (3) words borrowed from the various Romance languages exclusive of French, viz.: the Italian, Spanish, and Portuguese; (4) words borrowed from the Aryan languages besides Latin and Greek; and (5) the miscellaneous words borrowed from non-Aryan tongues. This gives the framework of the treatment; these elements are then systematically taken up.

Under the first head, an extended discussion (seven chapters) is given of the Anglo-French element in our speech. This is the designation that the author adopts for the French introduced by the Norman Conquest, and then developed in England. Stress is rightly laid upon the importance of distinguishing this element from any of the later additions to our vocabulary; this now essential factor is regarded as a part of our language almost as necessary for practical purposes as the "native English" of Anglo-Saxon origin. The history, the main characteristics, and the pronunciation of Anglo-French are sketched; illustrative specimens of the language are presented; its further development and modification under English influences are traced; abundant examples to illustrate the history of its phonetic changes are given. These pages contain extensive and useful material; they throw out many a suggestion to the observing student. Among other points, in dealing with the question of percentages of borrowed and native words, in a writer's style (p. 15), the author lays stress on the usefulness of computing the number of words of Anglo-French origin and of crediting the writer with these in contrast with the words he borrows from other foreign sources.

In treating the "central" or continental French borrowed after the fourteenth century down to the French of modern times, the method is parallel with the preceding. The language of Chaucer, Lydgate, Caxton, Shakespeare, and Dryden is briefly discussed in reference to importations from the French source. Stress is laid throughout on the importance of "chronology" in the history of words. Useful information, convenient for reference, is given in regard to the origin and the sources of French itself.

In accordance with the system of treatment adopted and with similar, if less extensive, detail, the classical elements of the Greek and Latin that were introduced with the revival of letters are discussed. The main phonetic principles governing the sound changes are well outlined. A like treatment of the remaining Romance languages follows. This leads the discussions to those borrowed words in English for whose etymology we are to look to the Asiatic, Sanskrit, Persian, Hebrew, and other languages. These pages recall again, of course, the Supplement of the author's Etymological Dictionary, where the distribution of words is dealt with; they afford additional illustrations of the principles of Etymology.

In the chapter (xxv) on "False Etymologies" a word of warning is given; illustrations show us how often it is necessary to unlearn etymologies that we have once carefully learned. This the author frankly and feelingly acknowledges to have been too often his own personal experience. He adds a few useful canons in regard to etymology; and he appends a chapter on vowel-gradation in the English strong verbs.

The work is a storehouse of material to which the scientific student of English may turn for illustrations and hints. Amid this abundance, it is true, we are sometimes almost apt to lose ourselves. There are points also upon which we may feel doubtful or upon which we may not perhaps agree with the author; but it is mostly where Dr. Skeat himself does not make any claim to positiveness, which he teaches us to avoid, and he often frankly wishes he were better prepared to speak with surety himself. The usefulness of this work, to which every student of English etymology will refer, is enhanced by the full Word Index for which Dr. Skeat expresses his thanks to his daughters.

COLUMBIA COLLEGE. A. V. W. JACKSON.

Outlines of a Critical Theory of Ethics.—By JOHN DEWEY, Professor of Philosophy in the University of Michigan. Ann Arbor, Mich.: The Inland Press, 1891, pp. 253.

A remark in the preface rather implies that Prof. Dewey expects his work to be of service as a text-book for teachers. But there is nothing in the volume to support such a hope. As is usual of late years with text-books, this one is of poor paper, poor print, and poor construction. One who hoped to find it at least the equal, and perhaps the superior, of the author's Psychology, and his volume on Leibnitz, will be greatly disappointed. It has either been very hastily produced, or it is merely the expansion of the author's dictations to his classes. But hastily or unhastily produced, there is nothing sufficiently systematic about it for use as a general text-book. It is thrown together in too promiscuous a form and without adequate analysis of the various problems which the student has to solve. Men's theories are taken up and considered in a fragmentary way that may do very well for dictations to a class, where they are discussed more fully in their details. But it would take a trained teacher, already acquainted with those theories, to make anything out of the author's references and quotations. In many cases an entirely false impression of a man's motive, method, and theory is left by this picking out of a phrase or a passage without its proper setting and connections with the fundamental principle of which it is a development. For example, on p. 90, Kant's "formal law" is discussed briefly and somewhat depreciated by accepting the validity of Mill's criticism against it. But no pains are taken to see or to state under what limitations Kant himself assigned it any value. Here as elsewhere the student who has not already familiarized himself with an author, will either fail to understand him rightly, or will carry away nothing but the feeling that an objection has been produced against him. For a text-book, too much time and space are taken up with reference to others' views and criticisms of them. I am rather of the opinion that such a method is not at all adapted to the writing of a text-book. Prof. Dewey has chosen it, as implied in the preface, in order to avoid dogmatism. But this fault is not a necessary characteristic of books which are not critical. If a man were simply to "lay down the moral law," in an assertory manner for the student to accept, *nolens volens*, he might be charged with dogmatism. But there is an easy way to avoid this unenviable repute, and it is to analyze the problem, stating the bearings of the various elements upon general theoretical tendencies. There is nothing to prevent being as unsectarian in this matter as mere description is in the sciences. Analysis in psychology and ethics may be what the statement of facts is elsewhere, and the individual could be left to draw his own conclusions, if we are concerned not to hamper the freedom of his thinking. But quotation and criticism are not the only means to this end, necessary as they may be for the proper treatment of a theory. The student requires a more comprehensive method.

I have criticised Prof. Dewey's book purely as a pedagogical instrument because of his expectation that it can be used as a text-book. Of its character as a contribution to the growing amount of ethical literature, I should have something much better to say. Indeed, in this respect, it should be spoken well of.

J. H. HYSLOP.

COLUMBIA COLLEGE.

Elementary Lessons in Heat, Light, and Sound.—By D. E. JONES, B. Sc. Professor of Physics in the University College of Wales, Aberystwyth. London and New York: Macmillan & Co., 1891, pp. x, 279.

The purpose of this little book is, as the author says in his preface, to introduce beginners to the study of physics by the experimental method. The author recognizes the fact, with which most teachers of physics are familiar, that until a certain amount of information respecting the properties of matter, and the phenomena resulting from the manifestations of energy in different forms, has been acquired by actual experience, the generalizations which are usually taught in physics can have no definite meaning to the pupil; and he also emphasizes the importance of training to the habit of observation, and of learning things at first hand.

To one who is a thorough believer in the experimental method of beginning the study of physics, however, the book cannot but be disappointing. While it is well arranged, clearly written, and contains many excellent problems for testing the ability of the pupil to apply the principles which he is supposed to have learned, and while it possesses that rarest of all virtues in a school text-book, scientific accuracy, it is weak in experimental physics.

The essential feature of true experimental science teaching is that it shall be inductive; *i.e.*, the generalization must follow and grow out of the individual notions upon which it is based. An experiment performed merely for the purpose of illustrating a principle already understood, or for verifying the statement of an author, will awaken little interest and less thought on the part of the pupil, unless he doubts the accuracy of the author's statement. In the book under consideration, the logical method of development is used quite as often as the inductive method, and, in every case, the necessity for thoughtful observation on the part of the pupil is reduced to a minimum by telling him how the experiment will terminate, and what it will prove.

The experiments are also, in the main, the stock experiments of the text-books, and are, consequently, of little aid to teachers who are searching for new ideas as to methods of presenting the subject to their classes.

FERNANDO SANFORD.

STANFORD UNIVERSITY.

Elements of Civil Government.—A text-book for use in public schools, high schools, and normal schools, and a manual of reference for teachers.—By ALEXANDER L. PETERMAN. New York: American Book Company, 1891, pp. 224.

The title page informs us that the author of this little book, Mr. Alexander L. Peterman, was formerly principal and professor of civil government in the normal school of the Kentucky State College, and member of the Kentucky State Senate. Both as teacher, therefore, and as legislator, Mr. Peterman has had an experience that must have been of great value in the preparation of a text-book on Civics. He understands his subject thoroughly, and he knows how to present it clearly, cogently, and briefly. Lucidity and brevity are the characteristics of his style. His language may be easily understood by any child who can read intelligently in a Fourth Reader, while the book, so far as length is concerned, will be mastered without difficulty by the average pupil in a term of five months. After glancing over many discursive books on government, it is a relief to come upon an author who can compress so much into so short a space.

Not only is the style good, but the matter, from a pedagogical point of view, is admirably arranged. Beginning with the government of the family, the author treats, in turn, of the governments of the school and school district, the township, the county, municipal corporations, the State, and the United States. The concept of government is evolved from the familiar facts of the family and the school, and hence the pupil will have little difficulty in comprehending the remote facts and theories, when he reaches them, of state and national government. The book concludes with chapters, somewhat more abstract than those which precede, on government, justice, law and liberty, suffrage and elections, the Australian ballot system, parties and party machinery, legislation, and revenue and taxation. As a rule, no concept is introduced until the material out of which it is to be built has been supplied. The only exceptions I have noted are that the terms, *ex post facto law* and *bill of attainder*, are used on page 74, but are not explained until page 118; and that the term *organized Territory* is used on page 65, while the explanation comes on page 94.

Each chapter is followed by a series of "suggestive questions," not questions directly on the text, but questions that require the student to make practical application of what he has read, and that thus exercise his reflective powers as well as his memory. Had this idea been carried still further—were the student required to find illustrations, both in the past history of our country and in current events, of the theories laid down—the questions would have been still more valuable than they are.

Of adverse criticism there is not much to be made. The book might have been enriched by the introduction of more historical matter, but this would have increased its bulk beyond the limitations imposed by its use. The author is sometimes over-bold in his assertions, as when he tells us: "Experience has shown that it is dangerous to the liberties of the people to permit either of the three departments of government to trespass upon the functions of the others." On the contrary, experience in other countries has shown that a closer union of the executive and legislative powers, as when the members of the cabinet hold places in the Legislature, may sometimes be attended with most positive advantages and become a guarantee, as it certainly is in England, of the liberties of the people. Again, he says: "Our system of government is different from those of all other countries, because part of the political power is vested in the State, and part in the nation;

that is in the United States." He had only to look across our northern border to discover that this statement needs to be strictly limited.

Upon the whole, however, the book is worthy of high commendation.

W. H. M.

Object Lessons From Nature: A First Book of Science.—By L. C. Miall, Professor of Biology in the Yorkshire College, Leeds. London and New York: Cassell & Co., 1890, pp. 302.

The plan of this book is briefly stated by the author as follows: "Simple explanations about animals and plants, with very familiar examples, described in some detail, come first. These early lessons are meant to give a small stock of information, to teach the habit of careful examination of all the details of any natural object, and to prompt questions. Then some chemical and physical facts are introduced, and experiment is brought in. Upon this foundation some simple lessons on clouds, rain, rivers, and on the food of plants are based. . . . . The main purpose of the book is to explain the simplest natural phenomena to children who are incapable of continuous and methodical thought. To the child these ought to be no separate sciences at all; and the scientific explanations should be simply ways of throwing light upon certain natural facts about which the child has been led to feel some curiosity."

It may be added that three important conditions are indispensable to success in object-lessons: suitable objects, a proper use of them, and awakened interest on the part of the pupil. The pupil must become the chief actor in seeing and in doing, in order to be a successful learner. The pupil must not only see and do, but also tell what is found or discovered. The teacher should encourage the pupil; lead him to correct mistakes made in seeing and in doing; and also explain what is seen or found out, so far as may be appropriate to the lesson.

Teachers understand the difficulties in the way of presenting natural objects for observation in the schoolroom. They realize, further, that many of the facts appropriate for object lessons relative to the structure and habits of animals, of plants, and of the common phenomena of nature, are not readily accessible to them. In view of these facts, the practical value of a book on object-lessons from nature may be judged by the character and appropriateness of the facts which it supplies for such lessons. An examination of the book under consideration shows that it contains many interesting facts which are overlooked by the ordinary observer; these are simply stated, and many of them plainly illustrated.

It may be stated that some of the methods suggested by the author for the use of this book are not in harmony with good object-teaching; but the teacher of tact will find many ways of making it a valuable aid in awakening the interest of his pupils in a careful study of nature.

N. A. CALKINS.

ASSISTANT SUPERINTENDENT OF SCHOOLS,
NEW YORK.

VII.

EDUCATION IN FOREIGN PERIODICALS.

The English Free Education Act.

We are glad to be able to lay before our readers the full text of the English Free Education Act, as it received the Royal Assent.—[ED. EDUCATIONAL REVIEW.]

Elementary Education Act, 1891.

(54 AND 55 VICT. C. 56.)

ARRANGEMENT OF SECTIONS.

1. Fee-grant and conditions thereof.
2. Limit of fees in schools receiving fee-grant.
3. Prohibition of charges in certain schools receiving fee-grant.
4. Power to modify limit in certain cases.
5. Provision for free schools, accommodation, etc.
6. Power to contribute from fee-grant to common school fund.
7. Grouping of schools.
8. Explanation of 33 and 34 Vict. c. 75, s. 17.
9. Provision for equality of treatment.
10. Meaning of " school year " and " average attendance."
11. Repeal.
12. Commencement of Act.
13. Short title and construction.

Schedule.

An Act to make further provision for assisting Education in Public Elementary Schools in England and Wales.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

Fee-grant and Conditions thereof.

1. (1) After the commencement of this Act, there shall be paid, out of moneys provided by Parliament, and at such

times and in such manner as may be determined by regulations of the Education Department, a grant (in this Act called a fee-grant) in aid of the cost of elementary education in England and Wales at the rate of 10*s*. a year for each child of the number of children over three and under fifteen years of age in average attendance at any public elementary school in England and Wales (not being an evening school) the managers of which are willing to receive the same and in which the Education Department are satisfied that the regulations as to fees are in accordance with the conditions in this Act.

(2) If in any case there is a failure to comply with any of the conditions in this Act, and the Education Department are satisfied that there was a reasonable excuse for the failure, the Department may pay the fee-grant, but in that case shall, if the amount received from fees has exceeded the amount allowed by this Act, make a deduction from the fee-grant equal to that excess.

(3) For the purposes of section 19 of the Elementary Education Act, 1876, the fee-grant paid or payable to a school shall be reckoned as school-pence to be met by the grant payable by the Education Department.

Limit of Fees in Schools receiving Fee-grant.

2. (1) In any school receiving the fee-grant:

(*a*) Where the average rate of fees received during school year ended last before January 1, 1891, was not in excess of 10*s*. a year for each child of the number of children in average attendance at the school: or,

(*b*) For which an annual Parliamentary grant has not fallen due before the said January 1:

no fee shall, except as by this Act provided, be charged for children over three and under fifteen years of age.

(2) In any school receiving the fee-grant where the said average rate was so in excess, the fees to be charged for children over three and under fifteen years of age shall not, except as by this Act provided, be such as to make the average rate of fees for all such children exceed for any school year the amount of the said excess.

Prohibition of Charges in certain Schools receiving Fee-Grant.

3. In any school receiving the fee-grant where the average rate charged and received in respect of fee and books, and for

other purposes, during the school year ended last before January 1, 1891, was not in excess of 10*s.* a year for each child of the number of children in average attendance at the school, no charge of any kind shall be made for any child over three and under fifteen years of age.

Power to Modify Limit in Certain Cases.

4. (1) Notwithstanding anything hereinbefore contained the Education Department, if they are satisfied that sufficient public school accommodation, without payment of fees, has been provided for a school district, and that the charge of school fees or the increase of school fees for children over three and under fifteen years of age in any particular school receiving the fee-grant is required owing to a change of population in the district, or will be for the educational benefit of the district, or any part of the district, may from time to time approve such charge or increase of fees in that school, provided that the ordinary fee for such children shall not exceed 6*d.* a week.

(2) The Education Department shall report annually to Parliament all cases in which they have sanctioned or refused the imposition or augmentation of fees under this section, with a statement of the amount of fee permitted.

(3) The Education Department may, if they think fit, make it an express condition of such approval that the amount received for any school year from the fees so charged or increased, or a specified portion of that amount, shall be taken in reduction of the fee-grant which would otherwise have been payable for that school year, and in that case the fee-grant shall be reduced accordingly.

Provision for Free Schools Accommodation, etc.

5. If at any time after the expiration of one year from the commencement of this Act it is represented to the Education Department that there is in any school district, or any part of a school district, an insufficient amount of public school accommodation without payment of fees for children over three and under fifteen years of age, for whom such accommodation is desired, and the Education Department are satisfied after inquiry that such is the case, the Department shall direct the deficiency to be supplied in the manner provided by sections 9 and 10 of the Elementary Education Act, 1870, and every other

section enabling them in that behalf, with respect to the supply of public school accommodation, and the expression "public school accommodation" in that Act shall include public school accommodation without payment of fees, provided that whenever and so long as any deficiency in such last-mentioned public school accommodation in any district is in course of being supplied with due despatch, no requisition or order shall be issued in that behalf by the Education Department.

Power to Contribute from Fee-grant to Common School Fund.

6. The managers of two or more public elementary schools in the same or neighbouring school districts, not being schools provided by a School Board, may pay the fee-grant, or part thereof, received by each school into a common fund for distribution, as may be arranged by them, between or among such schools.

Provided that the fee-grant received by each school in the first instance shall alone count as income of such school for the purposes of this Act and of section 19 of the Elementary Education Act, 1876, and a contribution to a school from any such common fund shall not be reckoned as income of such school from other sources within the said section 19.

Grouping Schools.

7. (1) Where the managers of two or more public elementary schools in the same or neighbouring school districts agree to associate, and elect a committee for the schools, any surplus income on the accounts for the school year of any of the associated schools may be paid into a common fund, out of which contributions may be made to any of the other associated schools, but the contributions received by any such school shall not be counted as income from other sources for the purpose of section 19 of the Elementary Education Act, 1876, so that no addition to the public charge may result from this section taken in conjunction with the said section 19. Provided that no Board school shall under this section be associated with any public elementary school other than a Board school.

Explanation of 33 and 34 Vict. c. 75, s. 17.

8. Nothing in section 17 of the Elementary Education Act, 1870, shall prevent a School Board from admitting scholars to any school provided by the Board without requiring any fee.

Provision for Equality of Treatment (see 33 and 34 Vict. c. 75, s. 97).

9. Nothing in this Act shall give any preference or advantage to any school on the ground that it is or is not provided by a School Board.

Meaning of "School Year," and "Average Attendance."

10. In this Act the expression "school year" shall mean a year or other period for which an annual Parliamentary grant is for the time being paid or payable under the minutes of the Education Department, and the expression "average attendance" shall, for the purposes of the fee-grant, mean average attendance calculated in accordance with the minutes in force at the commencement of this Act.

Repeal.

11. The Acts mentioned in the schedule to this Act are repealed to the extent mentioned in the third column of that schedule.

Commencement of Act.

12. This Act shall come into operation on September 1, 1891.

Short Title and Construction.

13. (1) This Act may be cited as the Elementary Education Act, 1891, and shall be construed as one with the Elementary Education Acts, 1870 to 1890.

(2) The Elementary Education Acts, 1870 to 1890, and this Act may be cited collectively as the Elementary Education Acts, 1870 to 1891.

SCHEDULE.

Enactments repealed.

Session and Chapter	Short Title	Extent of Repeal
33 & 34 Vict. c. 75.	The Elementary Education Act, 1870	Section 26.
39 & 40 Vict. c. 79.	The Elementary Education Act, 1876	Section 18.

Education in Ancient Greece.

L. Chauvin in "L'Education Nationale."

It is recognized that the educational practice of a people is closely related to its religious and political beliefs. It is not difficult to establish this in the case of the Greeks. The framework of the Greek religion was idealized humanity. The gods of Olympus had been mortal heroes. They had gained immortality by their virtues and by the services rendered to their compatriots. Their souls, released from human pains, dwelt forever in beautiful bodies and gave to them a majestic serenity. This divine character, which the Greek artists sought to impress upon their statuary, their educators sought to realize in the child. It is in this sense that the poet Juvenal intended his celebrated saying, *mens sana in corpore sano*. The means that they adopted were gymnastic and music.

Gymnastic gave to the body strength and suppleness, while music (which included, besides music proper, literature and the arts) cultivated the soul and gave to it purity and elevation. The dance, which had something in common both with gymnastic and with music, completed the work of education by establishing a harmony between the two sides of man's nature.

The political organization of the Greeks suggested the remaining features of their educational practice. The small states which made up Greece were really aristocratic republics, although some of them had kings. At the base of the social pyramid was a great multitude of slaves, possessing no political rights. At the apex were the freemen, comparatively few in number, having full political rights and all the political power. Between these two classes were the freedmen and foreign residents, who enjoyed certain immunities and could acquire property, but who had no part in the government. The slaves were the laborers, artisans, and domestic servants. Their education was limited to apprenticeship to a trade or calling. The children of the freemen were first of all trained to become soldiers. Later they were invested with civil and judicial powers. The safety of the state demanded that its citizens should be capable of governing the state and able to defend it against the attacks of foreign and domestic foes. Therefore the education of the future citizen was a very important matter, one to be regulated carefully by law. The child belonged to the state as well as to his parents. Most frequently the state claimed precedence over the parents. This characteristic was common to all the Greeks, but in different degrees. At Athens, state control was moderately exercised; at Sparta, on the other hand, the family was suppressed for the public good.

The education of the Spartans, as directed by the laws of Lycurgus, produced a courageous and martial race. It inspired a stern patriotism, but was not humane in our acceptation of that term. It overlooked literary and artistic culture. It sacrificed the most tender and delicate human sentiments. Its socialism left out of account that important institution, the family. It suppressed liberty, and by preventing the growth of individuality made progress difficult, if not impossible. The education of the Athenians was much superior. Solon had wished the state to play an important rôle, but the family retained its influence and its natural rights. The entire man was developed by a system which was at once ideal and utilitarian.

The Relation between Psychology and Pedagogy.

E. W. SCRIPTURE IN "MIND."

The last relation we have to consider is that between Psychology and Pedagogy. The didactic sciences are of two kinds: the sciences of the general principles or ends to be obtained and the sciences of the means to attain these ends. The general purposes can be either dogmatically or scientifically determined. "Love thy neighbor as thyself," "Know thyself," are dogmatic enunciations of general principles; "Nothing is to be believed that is not proved," can also be dogmatic; but the decision that the power of judgment is a more important factor than memory in an individual is a statement which has worth only upon scientific foundation. Have the dogmatic principles any worth as such? That is an open question. There exist, however, sciences which, with proper methods, establish the general objects to be sought for; these are the general didactic sciences. Among these is General Pedagogy, which determines the ends to be sought for in education.

When the general ends have been dogmatically set up or scientifically obtained, then the special didactic sciences teach the means of attaining them. The special sciences furnish the data; the special didactic sciences teach how to use these data in order to reach certain ends. Anatomy and physiology, for example, furnish data concerning the physical organism; a certain condition of the body is regarded as the proper one; it is the duty of hygiene, on the foundation of physiology, to teach how to maintain this condition. Likewise, certain conditions of mental life and certain traits of character are determined as desirable and proper: how to obtain and maintain these conditions, and how to develop these traits, are problems of Special Pedagogy working on the basis of psychology.

For psychology, the ambition of Napoleon is as interesting as the patriotism of Washington; the childish thoughts of primitive tribes are even more carefully cherished than the clearest reasonings of a philosopher; they are all material for investigation. The general science of pedagogy, or some rule of life, determines that clear reasoning is better than childish reasoning; that although to a certain degree ambition is to be desired, yet patriotism is more important. Thereupon the science of special pedagogy teaches how the desirable qualities are to be developed and the undesirable ones suppressed. Psychology furnishes the foundation of fact; the science of general pedagogy judges which of these facts are desirable, in much the same way as epistemology judges which are true; the practical duty of bringing forward or repressing these facts is the duty of special pedagogy.

Unethical Education.

FROM THE LONDON "JOURNAL OF EDUCATION."

A fragment found among the papers of the late Rev. R. H. Quick.

Time was when the mind of the nation was deeply stirred by questions about religion, and each party urged its favorite "improvement,"

> As if religion were intended,
> For nothing else but to be mended.

In this respect religion has now to some extent been succeeded by education. The war of parties now rages round every kind of education. No one thinks that things are right as they are, and each party urges some special amendment.

In our own time a Conservative Government has carried through a great revolution, and handed over the supreme control of our government to the working classes. The present writer, who cannot range himself with any political party, owns to having witnessed that revolution with alarm, but at the same time not without hope. All men were agreed that some great change was necessary, and this change was perhaps the only one possible. "The classes" had no doubt done many things well; indeed, the old oligarchy, before the first Reform Act of 1831, had made England the leading nation in Europe. But in those days little was expected from legislation. The common belief was expressed by the couplet:

> Few are the ills the human race endure
> That kings and governments can cause or cure.

The notion did not outlive the eighteenth century. The condition, the enlightenment, the happiness of every individual depends in a great measure on his environment; and his environment depends in a great measure on legislation. It may depend on legislation whether a class of persons spend their lives in the slums of Whitechapel and Bethnal Green or on the sheep walks of Australia. This, of course, is an extreme instance, but it is now clearly seen that the lives of all persons, especially of the great majority, viz., the poor, may be immensely affected by legislation. The need of the time, then, has become wise legislation.

How are we to get wise legislation? By putting power into the hands of a despot? or of "the classes"? or of "the masses"? Two things are needed in the legislative power: first, insight; second, unselfishness. These qualifications *may* be united in the despot, but in him they are hardly enough. He must also have almost superhuman energy, and also a gift for selecting right agents. There is besides another difficulty. How can a succession of wise despots be secured? A Marcus Aurelius may be followed by a Commodus. The classes have many advantages for discharging the duties of legislators. In early life they may obtain the best instruction, and they have leisure to profit by it. Individuals are found who benefit by these advantages. A man like the first Sir Robert Peel will live laborious days and train himself for the task of legislation. But the classes, as a body, fail from love of pleasure, and from a selfish desire to keep their own privileges. The questions that must be dealt with in the immediate future are questions affecting the condition of the masses, and it is in this kind of legislation that the classes are weak. In a dilettante way the classes speculate as to where the shoe pinches, but it is only the masses who know. So our latest revolution has given us one great advantage in dealing with such questions. We now have an electoral body which knows the wants of the people.

But, though the masses know the evils that affect them, they are not qualified to find the cure. The problems of modern life are very complicated, and there seems little chance of their being worked out except by experts. Such experts cannot be produced without time for study, so they will belong, not to the masses, but to the classes. And where the masses are in power it is not the man who best understands his subject who is listened to, but the man who speaks oftenest and with the loudest voice.

EDUCATIONAL REVIEW

NOVEMBER, 1891.

I.

THE POLICY OF THE SMALL COLLEGE.

Now that we have the germs, more or less developed, of eight or ten universities, the college must prepare to take second place in our educational system. To ape the university, and try to spread over the whole field of higher education; or to be jealous of the university, and set up as its rival, is equally absurd and suicidal. Its proper policy is to accept with modesty and self-respect its new position; and by losing the old life of self-sufficient independence, to find the new life of membership in the highly differentiated educational organism of which the kindergartens are the feet and the university is the head.

There are three classes of educated persons. First, those whose knowledge of reading, writing, arithmetic, grammar, geography, modern history, descriptive science, and their native language and literature, enables them to do ordinary business, to enter good society, and to enjoy periodical and popular literature. Second, those whose knowledge of ancient and modern languages and literatures, higher mathematics, experimental science, political and economic history, psychology, ethics, and sociology, enables them to grasp the principles of medicine or law or politics or theology; to guide social progress and form public opinion; to enjoy the companionship of wise and good men of all lands and ages; and to appreciate the results in some department of scientific investigation or historical research. Third, those whose special training qualifies them to discover and interpret new truth within some chosen field of knowledge.

To make scholars of the first class is the business of the school; to make scholars of the second class, and to discover and encourage those capable of entering the third class, is the business of the college; to train the chosen few who constitute the third class into full possession of productive powers, is the business of the university.

Assuming that the college has this clear consciousness of its intermediate position between school and university, and of its twofold office to train the majority of its students for scholarly professional and business life, and to discover in the few capacity for exclusively scholarly careers, let us see what its policy will be on such vital points as the conditions of admission, the course of study, the conferring of degrees, the composition of the faculty, the mode of government, and the spirit of the institution.

In determining the conditions of admission, the college has in view two ends which in the present state of secondary education are often inconsistent. First, to secure thorough training; and second, to make close and natural connection with the course of study pursued by the average student in our academies and high schools. In order to secure the requisite training the majority of Eastern colleges insist on specified amounts of Latin, Greek, and mathematics as the substance of their requirement. This requirement, however, does not coincide with the course of the average student in the high school. Unless, by the time a boy is thirteen, his parents have picked out a college career for him, he studies in the high school history, science, French, or German, neglecting Greek, and perhaps Latin, altogether. Then by the time he is seventeen he finds himself hopelessly cut off from a college course.

Why, then, does not the college recognize these studies as substitutes for the traditional requirements? For two reasons: one bad, and one good. The bad reason is that Latin, Greek, and mathematics, having been for generations the traditional requirements, have become the objects of superstitious veneration.

The good reason is that the average high school is not yet equipped, either in teachers or apparatus, to make the study of history, science, and modern languages the means of that thorough training which they are able to give by means of Greek and Latin.

There are schools in southern New England, and a few elsewhere, in which science and modern languages are so taught as to give the requisite training; and colleges which draw largely from these schools are justified in allowing the substitution of these studies for portions of the traditional requirement. The average college is not justified in such a course at present.

The change is destined to become universal in the near future. As soon as the high schools are able to teach experimental science, French, and German as well as they now teach Greek and Latin, it will be the policy of the college to require for admission mathematics and English as at present; ability to read easy prose at sight in Latin, and either Greek, French, or German, and evidence of a thorough course in experimental science. We shall then have a considerable number of students fitting for college in the high schools, who will be for the most part in the same classes with the students who are not intending to enter college, instead of the small number who pursue a separate course, and thus receive an undue amount of the time of the teacher, and an unjust proportion of the public school fund.

This modification in requirement will necessitate some corresponding modifications in the course of study. It will be necessary to offer an elementary course in Greek, as well as in German and French, for those who wish to begin this study after admission to college. There should be a course in the history, literature, mythology, and archæology of Greece required of every student who has not studied the Greek language as a part of his preparatory or college course.

The multiplication of highly specialized electives is not the province of the college. The expense is too great, and the profit to students at this stage too small.

There are two fundamental lines of scholarly interest, and two corresponding types of mind: the literary and the scientific.

The college should by its required courses insure to every student an acquaintance with the first principles in both these fundamental lines of study. The college may wisely require of its candidates for a degree, ability to read both French and German, to write correct English, the elements of political and economic science, psychology, and ethics, on the side of the literature and life of man; and higher algebra, geometry and trigonometry, and the elements of chemistry, physics, and biology, on the side of mathematics and physical science.

For the remaining half of the course sufficient electives should be offered to allow concentration on either literary or scientific studies according to the taste and interest of the individual student.

Such a readjustment of the conditions of admission and the course of study, together with improved methods of teaching in the lower schools, will allow pupils to enter college a year or two earlier than at present. No shortening of the course will be necessary. The difference between the best academies and high schools and those of inferior grade, will express itself by the increased number of students who will enter college a year in advance.

A. B. should be the ordinary college degree, and it should be given without reference to the precise nature of the course pursued. The degree means simply that the recipient is a liberally educated man. Attempts to discriminate between the educational value of courses of equal length and thoroughness in the same institution of liberal learning are relics of an educational superstition from which it is high time to emancipate ourselves.

In order to encourage continued study during the year immediately following graduation, the college is justified in granting the degree of A. M. to graduates who give evidence of having done the equivalent of a year's graduate study.

Beyond this the college has no right to go. It owes to its undergraduates the full expenditure of its income and the full time of its professors. And if it attempts to divide its strength between graduates and undergraduates, it does an injustice to both. It is the duty of the small college to drive away graduates who desire a prolonged course of systematic instruction, to larger institutions which make graduate instruction their main concern.

The degree of Ph. D. no mere college has a right to confer; and the conferring of this degree by institutions which make no adequate provision for graduate instruction is the gravest breach of educational propriety.

If sparingly and judiciously conferred, the honorary degrees of D. D. and LL. D. give fitting recognition to distinguished services to church and state by sons of the college and prominent public servants and benefactors in its immediate vicinity.

The most important department of college policy is the appointment of professors. The first lesson a college president has to learn is the comparative worthlessness of even the highest testimonials and letters of recommendation. Testimonials stand to fitness for a college professorship as naturalization papers to fitness for membership in Congress. They are things no candidate who is a stranger should be without; but they by no means indicate the desirability of his election.

Those young colleges which are rapidly filling their faculties with any and every applicant who comes gowned in a thesis and capped with a degree, and bringing in his grip a batch of testimonials from university professors, will soon discover to their sorrow that it takes more than knowledge of a specialty to make a good college professor, and more than an aggregation of specialists to constitute a faculty.

The chief business of the college is to train young men for active life; and a good proportion of a college faculty should be men who have gained maturity of character through experience in the great school of life; men who have studied a profession, or interested themselves in some practical social problem, or have traveled extensively or have edited a paper or delivered lectures, and at the same time have kept alive and fresh their scholarly pursuits and aims. In the college professor the man must be more than the scholar, if both he and his department are to gain the highest respect of his students.

Still, in order to fulfill its other function of awakening the scholarly impulse in those who have capacity for purely scholarly careers, no college faculty should be without a group of men fully equipped with university training and thoroughly imbued with the university spirit ; though these men must be selected with the greatest care out of scores of candidates, and with reference to their human, quite as much as to their scholastic, qualifications. Of course the two types of men may be blended in the same individual. Such men are, however, somewhat rare. The presence of two or three upon a faculty insures to a college perpetual prosperity and power.

The objects of college government are to secure good order and freedom from disturbance in the buildings and on the grounds of the college, and to protect the thoughtless and immature from their own folly and vice.

In a small college the first object can be most effectively secured by putting the whole responsibility for good order into the hands of the students themselves, as represented by a senate or jury of their own election. Their own sense of fitness, their loyalty to the college, and their regard for its good name, together with their superior opportunities for ascertaining the facts about any disturbance, render them the best guardians of its peace and order that a college can secure.

In order to make this system work, however, it must be a reality and not a pretense. The faculty must put the whole responsibility entirely upon the students ; reserving no veto power or right of reconsideration to themselves. In Bowdoin College this responsibility has been delegated to the students during the past eight years ; and throughout that period no question of this kind had been dealt with by president or faculty. The students have acted on their own judgment of what is just and right. Sometimes they have acted wisely, sometimes they have acted unwisely; sometimes they have failed to act at all. But in every case the full responsibility has been with them. There has been a steady advance in the fidelity and efficiency with which the jury has done its work; and during the last two years they have done all that the strictest faculty would, and more than any faculty could have done, to maintain the good order and elevate the standard of conduct in and about the college grounds.

The reformation of individual students can be done better by personal influence of president and professor than by formal faculty action. An unofficial letter of advice and warning to parents, a friendly talk with the student himself, is much more effective than a scale of fines, demerits, rustications, suspensions, probations, special probations, and expulsions.

If a student fails to respond to this personal appeal, he should be removed as quietly as possible at the first convenient season, in a way that will least attract the attention of the outside world, least hurt the feelings of parents and friends, and most kindly and firmly impress upon the student the fact that he and not the college is to blame for the severing of their connection.

The assumption with reference to students should be not that they are criminals, to be properly punished for every crime they commit; but that they are thoughtless and immature persons, who often need advice and warning and reproof; who, as a rule, mean to do right, and can be much more efficiently controlled by good will and patience than by wrath and vengeance.

In a word, the government of a small college should be that of a large family; the welfare of the students, collective and individual, should be its single aim; and the fewest rules and the slightest penalties and the least display of authority that will accomplish these ends is the ideal of college government.

The spirit and tone of the college should be in the broadest sense of the term religious.

It is simply inconceivable that young men between seventeen and twenty-five should be content with the mere doing of the particular tasks assigned them from day to day, regardless of the wider relations and deeper meaning of their lives. This hunger and thirst for adjustment to a larger and higher sphere of being may be met in either of two ways.

The student may go into society, acquire the ways of the world, and by gaining entrance to the circles of the cultured, and finding favor in the eyes of the fair, attain the conviction that he belongs to the great and glorious order of things, and that all is well with him. His accomplishments and popularity secure him considerable advantage in getting a start in life, and he easily becomes a typical man of the world. He lacks depth, sincerity, and inward strength, and is not sure to stand the strain of disappointment and temptation in later years.

The tendency of life in large colleges near great cities is somewhat in this direction. The small college in the country town does not present in such bewitching guise the attractions of social life. And so the student's mind may more easily be led beyond the artificial, local, and temporal aspects of life, out into meditation and communion with the universal and eternal. The student thus trained may lack some of the accomplishments and miss some of the opportunities of his urban brother; but he has formed fixed ideals of character and principles of conduct. He is rooted and grounded in reality, and his confidence is in God and his own right arm.

The maintenance of this religious tone and spirit, which is manly because it is godly, and is superior to the shocks of time and fortune because it is rooted and grounded in eternity and God, should be the distinctive and crowning glory of the small college.

For combining sound scholarship with solid character; for making men both intellectually and spiritually free; for unit-ing the pursuit of truth with reverence for duty, the small college, open to the worthy graduates of every good high school, presenting a course sufficiently rigid to give symmetrical development, and sufficiently elastic to encourage individuality along congenial lines, taught by professors who are men first and scholars afterward, governed by kindly personal influence, and secluded from too frequent contact with social distractions, has a mission which no change of educational conditions can take away, and a policy which no sentiment of vanity or jealousy should be permitted to turn aside.

WILLIAM DE WITT HYDE.

BOWDOIN COLLEGE,
BRUNSWICK, ME.

II.

THE LITERATURE OF EDUCATION.

The literature of education might be divided into literature pertaining to the history of education, literature pertaining to principles of education, literature pertaining to methods of instruction, and literature consisting of books whose chief aim is to direct the moral purpose and arouse the enthusiasm of the teacher. For practical purposes, however, it is extremely difficult to establish any such classification as the foregoing. Methods are deductions from principles, and principles of education are deductions from so many sciences, as well as from the history of education, that it cannot be said of any one book that it is exclusively devoted to principles or to methods; while the history of education, as I shall attempt to show, is best gleaned, not from the text-books on the subject, but from books of many different characters, produced at far distant periods and under the most diverse conditions. The order that exists in the literature of education is not the order of bricks in a wall, but the order of the boughs and the foliage of a tree.

That the ordinary text-books studied in our normal schools do not supply all that is necessary for the thorough equipment of the teacher is only too apparent. Take, for instance, the history of education. This subject has been made a part of the course of study in every State normal school, in every city training school for teachers, in every college department of pedagogy. It is justly claimed for the history of education that, when properly studied, it results in culture of the highest kind by generating a realizing sense of the great things accomplished by the human race; that it imparts an exalted idea of the teacher's profession through inciting reverence for the great teachers who have left their impress on mankind; that it shows us what to avoid by exhibiting the experiments that have been tried in the balance of experience and found wanting; and that it displays before us principles and methods the efficacy of which has been demonstrated by the accumulated testimony of ages. Are these claims sustained in practice? In every school are found teachers that are supposed to have made a study of the history of education, who are not imbued with reverence for the great professors of the teaching art; who day after day commit the very mistakes that have been demonstrated a thousand times to be mistakes; and who are devoid of any realizing sense of the principles that were long since enrolled among the eternal verities. In spite of their study of the history of education, many teachers still build their houses, so to speak, on the sand and not on the rocks.

Indeed, the question may well be asked: Are we, in any proper sense of the term, teaching the history of education? What is it we do? We place in the hands of our pupils a little text-book on the subject, and tell them to study that. It consists of brief biographical sketches of great teachers, brief accounts of the schools they founded or conducted and the works they wrote, and a summary of the principles of education they are supposed to have established. Pupil teachers memorize names, and dates, and lists of principles, which they proceed to forget with the utmost alacrity as soon as the graduating examination is concluded. And this is all that comes to the average teacher from studying the history of education—the merest shell, from which the kernel has been lost.

The case is exactly paralleled in the history of the teaching of English literature. When English literature first became a subject of school study, no better plan was found than to set children to memorizing the names of authors, the works they had written, and criticisms upon these works; and thus the most delightful of all studies is to this day often made a mere weariness of the flesh. And so with the history of education. We read about the great teachers instead of reading what they have written. Criticisms upon their lives and writings are of the highest utility in their proper place; but the foundation should be laid by first reading the works themselves. For, unfortunately, the methods by which a great teacher accomplishes his results, depending so largely upon voice and manner and personal magnetism and moral force, must to a great extent perish with him. His impress, it is true, he may leave upon thousands of souls by whom again it is transmitted to others; but this is invisible and intangible. What we may learn from him, we learn only through the printed page. There, at least, we may commune with the great teachers of the past; there, we may acquire something of their merits; there, we may imbibe something of their inspiration. The writings they have left us constitute the literature of education—a literature that has emanated from some of the greatest minds that ever illuminated this earth—a literature in which, to borrow a simile from De Quincey, it would be as difficult to distinguish the values of the matter and the style, as, with regard to the earliest rays of the dawn, it would be to say how much of the beauty lies in the heavenly light which chases away the darkness, how much in the rosy color which that light entangles. It is this interpenetration, this inseparability of matter and style, that constitutes the distinguishing mark of all literature properly so called, and no less of the literature of education than of any other literature.

Since literature first began, the great creative minds of the world have come in groups, causing "intermitting paroxysms of intellectual energy." "The lightning and the storm," again to borrow De Quincey's imagery, "seem to have made the circuit of the whole European heavens, to have formed vortices successively in every civilized land, and to have discharged themselves by turns from every quarter of the atmosphere." Each of these "paroxysms of intellectual energy," it would not be difficult to show, connects itself with some great social or political upheaval that stirred men's souls to their innermost depths and threw to the surface the emanations of genius, as flames are projected from the crater of a volcano.

For the working out of this idea, however, I must refer the reader to De Quincey's noble essay on style. What is more to my purpose is to show that invariably each cluster of creative minds has contained at least one that has made lasting additions to pedagogical science; that every great manifestation of intellectual energy has thrown fresh light on the problem of how each generation ought to train its successor. Sometimes, the literature of education is fraught with the very spirit of the age that gave it birth, as in the writing of Plato; sometimes, it is a protest against existing usages or a satire upon prevalent abuses, as in those of Rabelais; sometimes, the educational seer, with prophetic ken, as in the case of Bacon, anticipates by centuries the reforms and practices of future ages; but, in every instance, educational literature, where it really belongs to the literature of *power* as distinguished from the literature of *knowledge*, is an emanation from the spirit of the age in which it is produced.

I shall now endeavor very briefly to indicate the works that, while belonging to literature in general, belong also to the literature of education.

First in order of time, and certainly among the first in order of merit, comes Plato's *Republic*. It should be read in the original, if possible; if not, in Jowett's translation. But whether it be perused in the original or in a translation, it should be studied in the light of Professor Nettleship's *Exposition of Plato's Theory of Education*—one of the noblest contributions to pedagogical science that our century has produced. The reader of these works will have studied them to little purpose if his mind is not possessed of at least three clear ideas: first, that there can be no rational system of education that is not founded on an analysis of the powers of the human mind; second, "that neither a state nor an individual can undertake to educate in a systematic way unless they start with some idea not only of what they wish to teach, not only of the type of character which they wish to produce, but also of the living being to which the matter to be taught is relative, and upon which the given character is to be impressed"; and, third, that the formation of character is much more important than the imparting of knowledge. How many states or cities have formulated the object of public education? How many teachers have formed a working conception of the character they should impress on the beings committed to their care?

Aristotle has left us two treatises that are practically works on the science of education. In his *Ethics*, he gives us from the Hellenic standpoint the science that underlies the art of moral education; in his *Politics*, he expounds the duty of the state to education. To him the world owes two great ideas: that it is the duty of the state to educate, and that education should be compulsory. The failure to produce a certain type of character is the failure of the state.

> Ill fares the land, to hastening ills a prey,
> Where wealth accumulates and men decay.

Ancient Rome has left us no great treatise on education. The Romans were too busy in conquering and ruling the world to indulge in philosophical inquiries. The art of arts with the Roman was oratory. Hence it is that the most ambitious educational work produced in ancient Rome—that which gives us the clearest insight into the methods of Roman education—is Quintilian's *Institutes of Oratory*. Of much greater interest and value to the teacher, however, is Plutarch's *Lives*, which, though written in Greek, presents many phases and results of Roman, as well as of Greek, education. Probably the best translation, though unfortunately only a partial one, is that by the late Mr. George Long.

After pronouncing a eulogy on the "self-culture" of the Greek, and the "self-sacrifice" of the Roman, Oscar Browning exclaims, "Has the modern world ever surpassed these types?" Magnificent, however, as were the civilizations of Greece and Rome, it should never be forgotten that both of them rested on foundations of slavery, and that little thought was given to the education of the children of the poor and lowly, much less to that of the children of the slave. A new conception of education, of its universality as well as of its beneficence; above all, of the dignity of child life and of the responsibility of those to whose care it is committed, began to dawn on that day when the greatest Moral Teacher of all time took a little child and set him in the midst of the disciples, saying:

> Whosoever, therefore, shall humble himself as this little child, the same is greatest in the kingdom of heaven.
>
> And whoso shall receive one such little child in my name, receiveth me.
>
> But whoso shall offend one of these little ones which believe in me, it were better for him that a millstone were hanged about his neck, and that he were drowned in the depths of the sea.

Surely the *Gospels* are rightly included in the literature of education.

When Christianity began to spread throughout the Roman empire, strife arose between the adherents of paganism and the adherents of the new religion. One of the most bitterly contested points was the education of the young. There is an account of this strife, that is of enthralling interest, in Charles Kingsley's noble novel, *Hypatia.*

As Christianity spread more widely and took root more deeply, as the nations of Europe began slowly to build themselves up out of the débris of the Roman Empire, two systems of education developed. One was the education of the young monk; the other, the education of the young knight. The former trained its subject for a life of seclusion and asceticism; the latter, for a life of chivalry and all that the name implies. Both systems, so potent is tradition, so strong is hereditary influence, have left their marks, even to this day, on educational practice. There are still to be found schools in which teachers shout and scream in impotent rage at their pupils; in which brutal whippings are the chief instrument of moral, or rather of immoral, education; in which children are compelled to sit in constrained positions and perfectly motionless, and in which various other ingenious tortures, euphemistically termed "discipline," are practiced. Are not these barbarities survivals of customs that prevailed when, to use Oscar Browning's words, "Education was a routine of useless technicalities, enforced amid the shouts of the teachers and the lamentations of the taught?" Nor are those wanting, on the other hand, who would reduce all school work to play; and so it would seem that the education given the young knight in baronial hall, or my lady's bower, is still not without its influence. Laurie's *Rise and Constitution of Universities* summarizes the descriptions of monastic schools given by contemporary writers as well as the comments of subsequent historians. Professor Laurie not only shows, from the example of the monastic schools, what is to be avoided in school management, but also gives us a picture of the noble work accomplished by the church in keeping bright the torch of learning in the midst of an age of darkness. Newman's *Idea of a University*, every page of which is suffused with the fine moral glow that permeated its author's mind, treats in part of the same subject. The noblest setting forth of the ideal of knightly education is to be found in Tennyson's *The Idyls of the King*; but, perhaps, a truer picture—certainly truer for later times—of the young knight's education, is presented in Sir Walter Scott's romance, *The Abbot.* There are, however, two books, produced in the Middle Ages, presenting, as they do, whatever is best in the intellectual and religious life of the time, that should be in every teacher's library—the *Imitation* of Thomas à Kempis and the *Divine Comedy* of Dante.

The Renaissance—the period of transition from the Middle Ages to modern life, roughly marked out by the fourteenth and fifteenth centuries—gave a great impetus to education and prepared the way for the production of a new educational literature. The invention of gunpowder had given the deathblow to feudalism. The mariner's compass had enabled the sailor to venture beyond the Mediterranean, and rendered possible the discoveries of Vasco da Gama and Columbus. Printing with movable types had placed books within the reach of all and brought general education within the possibilities. A reaction set in against the predominant theological training in the schools. At a time when men were searching for stimulus and direction, the Greek scholars, who, after the fall of Constantinople, found their way all over Europe, managed to turn the energies of the schools toward the classical literatures of Greece and Rome. The Greek scholar, however, of whom George Eliot gives us an accurate portrait in *Romola*, was not the man to institute educational reforms. Notwithstanding the efforts of Erasmus, the change in the subjects of study did not result in any marked improvement either in the ideal, or in the methods, of education. The pouring in of knowledge—often useless knowledge—continued to form the ideal; the cane continued to supply the method. The revolt against the brutality of the schoolmaster was, to their honor be it spoken, led by the Jesuits. Of teaching as practiced by the Jesuits in the seventeenth century, very interesting, and withal not unkindly, accounts are given by Thackeray in *Henry Esmond* and by Shorthouse in *John Inglesant.* The revolt against the prevailing ideal in education was led on the one side by the leaders of the Protestant reformation, —Luther and Melancthon,—and, on the other, by two literary men of genius whose writings deserve to be held in everlasting remembrance by the teacher—Rabelais and Montaigne. One of the greatest masters of satire, Rabelais protests with all his strength against the school teaching and the school literature of his day. His work was not merely destructive; it was also constructive. He advocates training through the exercise of the child's innate powers, as distinguished from the mere pouring in of information, and makes a strong plea for the study of things as well as of words; for giving attention to nature as well as to books. The arrows of his satire find targets even in the present day, and every teacher may study with profit the chapters on education in *The Life of Gargantua* and *The Heroic Deeds of Pantagruel.* Montaigne, in his essays, takes up the work commenced by Rabelais, minimizes the importance of mere knowledge, inveighs against severity, and urges the necessity of training.

In the works of these two writers are found the germs of two controversies that are still waging—the controversy between training on the one hand and the memorizing of facts on the other, and the controversy as to the relative values of various kinds of knowledge, particularly of language studies and nature studies. As yet only one memorable work on education had been produced in England—*The Schoolmaster* of Roger Ascham; and this is chiefly valuable as a disquisition on methods of teaching Latin. But now one appeared on the stage whose philosophy, even though its full effect is not yet apparent in educational work, was destined to turn the current of the world's thought, as never before, in the direction of nature studies—Francis Bacon, the author of the *Essays* and the *Novum Organum.* Those who still labor under the delusion that Francis Bacon invented inductive logic, would do well to read Macaulay's essay on the subject. Bacon it was, however, who gave a great impetus to the study of nature; who urged upon men, instead of accepting hypotheses at second hand, or on purely imaginary grounds, to verify them by bringing them to the touchstone of fact. The great truths which he enunciated are only beginning even now to receive their due weight in educational philosophy. His influence may be traced in nearly all subsequent writings on the philosophy of education. Even John Milton, classicist as he was, was profoundly influenced by the Baconian philosophy in writing the *Tractate on Education;* and it reappears with increased vigor in the work of Comenius, who is generally regarded as the founder of the modern science of education. Comenius saw, says Quick, "that every human creature should be trained up to become a reasonable being, and that the training should be such as to draw out God-given faculties." His writings are very voluminous, and are best studied in the summary of them presented by Professor Laurie in *The Educational Life and Writings of John Amos Comenius.*

Passing over the educational writings of John Locke with the simple remark that they will amply repay perusal, I come to two writers who will be readily admitted to the number of great reformers. They are the legitimate successors of Rabelais and Montaigne, of Bacon and Comenius. Their names are on everyone's lips, but it is somewhat doubtful whether their philosophies are as accurately known as their names are familiar. Every teacher should make a part of his own mind Pestalozzi's *Leonard and Gertrude* and Froebel's *Education of Man.*

The immediate precursor of Pestalozzi and Froebel was Rousseau. His was as the voice of one crying in the wilderness. In *Emile* he gives vent to that profound discontent which paved the way for the French Revolution. Many of his theories and methods are now regarded as purely fantastic, and yet *Emile* is one of the great classics of education. "It cleared away," says John Morley, "the accumulation of clogging prejudices and obscure inveterate usage which made education one of the dark formalistic arts; and it admitted floods of light and air into tightly closed nurseries and schoolrooms." Mr. Quick points out that it did even more—that it is the first book to set forth as the paramount duty of the teacher, "Study the subject you have to act upon."

In order to study the minds and dispositions of children with a view to providing requisite training, some knowledge of psychology is necessary. Whether we take the view of Professor Royce, that what the teacher has chiefly to gain from the study of psychology is the psychological spirit—the love and the skill that are required for mental diagnosis; or whether we agree with Dr. Mary Putnam Jacobi, that the teacher is not merely an observing naturalist, but "an agent appointed to solve problems, to produce effects on a living organism, to modify forces, which begin by being psychological, but end by being social;" it matters not which of these positions we assume, we must still agree that psychology is a *sine qua non* to the teacher. Most of the older works on the subject are, however, ruled out from the literature of education because they were written, not to aid a psychological naturalist, but to support some preconceived notion in theology or metaphysics. Moreover, the modern discoveries in physiological psychology are of such tremendous importance that it is safe to say that the greater part of the psychology written more than thirty-five years ago is now practically worthless from the teacher's point of view. The treatises by Mr. Sully and Professor Murray will be found helpful; while Professor James's more extended work is invaluable. The teacher, however, who merely reads his psychology will get little benefit from the study. What he needs to do is to bring every doctrine and every statement to the test of experience, both by introspection and by observing the minds of children.

Psychology, however, does not furnish complete data for a philosophy of education. These must also come from biology, physiology, sociology, and ethics. Of those who have essayed philosophies of education, Kant, Hegel, and Herbart, in Germany, are the most prominent. Unfortunately, the pedagogical writings of Kant are not readily accessible. A characteristic story of Hegel is told. "Only one living man except myself," he said, "understands my philosophy, and he misunderstands it." Rosenkranz's *Philosophy of Education* presents a tolerably clear, though not an attractive, exposition of Hegelian pedagogics. Dr. W. T. Harris, in his *Thoughts on Educational Psychology*, has not only illuminated many of the recesses of Hegel's philosophy, but in his own doctrine of the figures of logic has made one of the most important additions to educational philosophy yet contributed on this side of the Atlantic. The Herbartian system of pedagogy received its first adequate exposition in English from the pen of President De Garmo in the pages of the EDUCATIONAL REVIEW.[1]

"Modern thought," says Walter Pater, "is distinguished from ancient by its cultivation of the 'relative' spirit in place of the 'absolute.' Ancient philosophy sought to arrest every object in an eternal outline, to fix thought in a necessary formula, and the varieties of life in a classification by 'kinds' or *genera*. To the modern spirit nothing is, or can be, rightly known, except relatively and under conditions. The philosophical conception of the relative has been developed in modern times through the influence of the sciences of observation. These sciences reveal types of life evanescing into each other by inexpressible refinements of change. Things pass into their opposites by accumulation of undefinable quantities." In other words, it is the doctrine of evolution that has wrought the change from the cultivation of the "absolute" in thought to the cultivation of the "relative" in thought. The spirit of the evolution philosophy, as expounded by Charles Darwin and Herbert Spencer in England, and by John Fiske in America, is affecting every region of thought from theology to education. It would be strange, indeed, if it did not make some valuable contributions to the philosophy of education. Perhaps the most notable educational works in English that are filled with the scientific spirit are John Stuart Mill's *St. Andrew's Address*, Joseph Payne's *Lectures on Education*, Herbert Spencer's *Education*, and Bain's *Science of Education.*

---

[1] I, 33, 244, 453.

Of books on methods of instruction I have not space to write. What is of chief importance to the teacher is not a "cut and dried" method of giving a lesson, but, in the first place, general culture, and, in the second, a knowledge of the literature of education. To the teacher who is without general culture, who does not know well the sciences and arts he is required to teach, who has not trained his own mind to systematic habits of observation and reflection, the literature of education will be of little service. General culture is of the first importance; special studies follow in natural sequence.

Even the most cursory view, however, of the literature of education would be incomplete without mentioning a few books which, though not ostensibly setting forth the history, the science, or the methods of education, form a perennial spring of inspiration to the teacher. Of high rank among these are Horace Mann's *Addresses and Reports*, Stanley's *Life of Arnold*, Matthew Arnold's *Reports*, and D'Arcy W. Thompson's *Day Dreams of a Schoolmaster.* Several novels, also, may be included in this class, as Charlotte Brontë's *The Professor*, Thomas Hughes's *Tom Brown at Rugby* and *Tom Brown at Oxford*, George Eliot's *Mill on the Floss*, Oliver Wendell Holmes's *Elsie Venner*, Dickens's *Nicholas Nickleby*, *David Copperfield*, and *Hard Times*, Edward Eggleston's *Hoosier School-*

master and *Hoosier Schoolboy*, and many others. Such poems, too, as Tennyson's *The Princess*, and Wordsworth's *The Prelude*, may fairly be included in this category. But the greatest of all founts of inspiration to the teacher is Goethe—he "to whom every moment of life brought its contribution of experimental, individual knowledge; by whom no touch of the world of form, color, and passion was disregarded"; and it is in *Wilhelm Meister*, particularly in the *Travels*, that this inspiration is to be found. As Wilhelm approaches, after a year's absence, the country of education where he had left his son, a multitude of horses rush by him at full gallop. "The monstrous hurly-burly whirls past the wanderer; a fair boy among the keepers looks at him with surprise, pulls in, leaps down, and embraces his father." Wilhelm then learns that his son's teacher had found the boy fond of animals and had set him to that occupation for which he had been destined by nature. And so we come back to the old, old story. From Plato to Rabelais, from Rabelais to Rousseau, from Rousseau to Herbert Spencer, one leading thought runs through the literature of education—follow nature, guide it, and regulate it; do not stifle it. In all ages, teachers have for the most part adopted a different plan. They have followed preconceived theories instead of following nature; they have built a Procrustean bed and stretched their pupils upon it; they have tried to pour in knowledge instead of developing the God-given faculties of the child to see, to think, to feel, to do. What is the history of education but one long gloomy record of how practice has failed to keep pace with theory? To the literature of education we must look for our ideal and for the inspiration that will lead to its realization.

WILLIAM H. MAXWELL.

BROOKLYN, N. Y.

III.

TEACHERS' SALARIES AND PENSIONS.

The status of public school teachers in this country illustrates in many respects the peculiar inconsistencies of American character and policies. We regard our institutions as the sum of human perfection until it is clearly proved to us that they are not, and we receive the evidence with the air of having made a flattering discovery. Within the memory of a generation we seriously believed that our schools were the unrivaled models of the world; the knowledge that this is a mistake has not disconcerted us. This complacency is not wholly without reason. So far as principles go, our own school system is indeed matchless; it contains potentially all that idealists have dreamed or philosophers formulated, but its practical elaboration is as yet far below their grand conceptions. The perfection of details which is necessarily a work of time under all circumstances, goes on the more slowly with us on account of our local independence and our very general absorption in personal affairs. The sort of negative policy which characterizes our dealings with public school teachers does not, however, grow entirely out of our national complacency or our universal devotion to business. We are all Jeffersonians to the extent that we have a hatred and a horror of caste, and we fancy a connection between this abhorred thing and a State teaching service. Even teachers have shared this feeling, and although anxious to see their work placed on a secure and dignified basis, have not wished that it should be differentiated by peculiar public marks from other professions. While, however, the open avowal of a vital connection between the teaching service and the State is evaded, in that very connection lies the real explanation of everything that has thus far been done to maintain the service. The support of normal schools by public funds, the public examination of teachers, State diplomas, State supervision, and so on, are all declarations that something far more abiding and uniform than the law of supply and demand regulates, and must regulate, the work of the schools. If this were not a profound and well recognized truth, every other trade and profession would be clamoring against what is already done for teachers as class legislation.

The drift of events during the last ten years, especially the passion for organized effort which has developed on every hand, has done much to allay undue sensitiveness as to caste and distinctions, and meanwhile the evils arising from the partial recognition of the public responsibility for an efficient teaching service have had their effect. We have at least passed the *laissez faire* stage, and are now quite ready to consider what the State should do, that it has not done, to render the service which it almost monopolizes decently remunerative and permanent. Practically, at this time, the State has the monopoly of elementary instruction among us, and if it does not do the work well it injures itself and defrauds everybody. We may be positively sure that no work is well done in this world, least of all in this American world, which pays only a miserable pittance and offers no chance for securing a competence. How far this charge can be made against the work of public instruction in this country it is difficult to say, the scale of salaries here being more variable than anywhere else, with the possible exception of England. In Massachusetts, for example, the average is high, viz.: for men $108.85 per month and for women $45.93, with an average school year of 8.55 months. This gives an average annual salary for men of $930.66 and for women of $392.70. In North Carolina, on the contrary, the average salary for men is only $24.57 a month and for women $21.95, with an average school year of 3.17 months. This gives an average annual income for public school service of $77.88 for men and $69.58 for women. In the one State, the service has the essential characteristics of a recognized, well-defined profession; in the other it is largely a make-shift for eking out an uncertain income. Between these extremes there is almost every possible gradation. Obviously the policies that are practicable in one State are out of the question in another.

It must be admitted, however, that few States afford an average salary sufficient to insure living expenses and a fair margin for the future. Until this level is reached the service lacks a most important element, whether security or efficiency be considered. It is the recognition of this weak point that is giving strength to the movement in certain States for securing teachers' pensions. This movement follows the precedent of all foreign nations in which public instruction is treated as a State service. It is perhaps not wise to reason too closely from such precedents to our own country, the conditions of labor, the standards of living, and the purchasing power of money being so dissimilar; nevertheless, we can hardly fail to find profitable suggestion in the consideration of the status of salaries and of pensions in other countries.

In France, the public men, who have strained every nerve to give *éclat* and efficiency to their educational system, realize that it is fundamentally a problem of salaries and of honors. They have regulated the matter with an eye to effect, just as the military service is regulated. There is a system of promotions; there are positions in the administrative corps and in the superior and local councils of education to which teachers may aspire, and the salaries as fixed by the law of July 19, 1889, although smaller than Buisson and Ferry and other leaders would have had them, are an advance upon the former rates.

Principal teachers are divided into three groups, viz., elementary, superior primary, and normal. Each group is divided into five classes, with annual salaries paid by the State as follows:

	PRIMARY SCHOOLS.		SUPERIOR PRIMARY TEACHERS.	NORMAL SCHOOLS.	
	Men.	Women.		Men.	Women.
Fifth class	$200	$200	$360	$700	$600
Fourth class	240	240	400	800	700
Third class	300	280	450	900	800
Second class	360	300	500	1000	900
First class	400	320	560	1100	1000

An additional sum of $40 is allowed principals in charge of a school of three or four classes, and of $80 for a school of more than four classes. Assistant teachers in primary schools are paid $160. Assistant teachers in superior primary schools, from $220 to $420. In addition to his salary, every teacher must be provided with a residence or with a money equivalent for the same. The law imposes this provision upon the communes, adjusting the rates of indemnity upon the basis of population. These, beginning at $20 for communes having less than 3000 inhabitants, form an ascending series of eight grades, increasing uniformly by $20. For a population above 100,000 the indemnity reaches $160. A special rate of $400 is allowed in Paris.

Individual communes may and often do pay an increase over both the minimum salary and the statutory house-indemnity. These rates give a higher average than American salaries. This is, however, a misleading comparison, because in the case of France we are dealing with a single uniform system, and in that of the United States with forty-four or more distinct and widely varying systems. Moreover, the French salary is paid for the full control of the teacher's time, whose working year is eleven months and who is prohibited from all other occupations. The average school year in the United States, on the contrary, is only 6.7 months, which means of course for many States a much shorter session. The remainder of the time the teacher can do what he pleases. This may be an evil in the system, but it is a fact having an important bearing upon the salary question.

By a law passed seventeen years before the establishment of the present Republic, the French civil pension list was extended to include teachers. The pension is available for teachers sixty years of age who have given thirty years' service. Under some circumstances, it is available at fifty-five years of age after twenty-five years of service. Special provisions are made for those incapacitated from service by accident, severe illness, and similar causes. The State retains five per cent. of the salary each month, and also one-twelfth of the first year's salary, and of each subsequent augmentation, toward the pension fund. The amount of the pension is calculated at $\frac{1}{60}$ of the mean salary of the last six years for each year of service, a rating which, it will be seen, gives as a maximum annual pension, one-half of the mean annual salary. Complaint is made of the retention of a twelfth of the salary at the beginning of an engagement, as practically it leaves the novice without any income until the end of the second month. Otherwise the arrangement seems to work satisfactorily.

The status of teachers in Germany is so well understood in this country that little need be said on the subject. They constitute a professional body having a life tenure, and enjoy a prestige similar to that of the clergy. Their salaries are, however, meager, and at the present time, in many districts of Prussia, complaint is made of a dearth of candidates for teachers' positions owing to the uninviting pecuniary prospect. Nevertheless, statistics show that the average salary, the whole empire included, is 1032 marks, or $258. In the cities the average is 1365 marks ($341.25), and in the country 874 marks ($218.50). In addition, house and fuel are provided. The city salaries are below the average in the United States and very much below the average paid here to men. This should be especially noted, since nearly all the German teachers are men. For reasons already mentioned, the averages for this country cannot well be given, but the report of the Commissioner of Education, just issued, contains some tables that will be found suggestive. From these it appears that the range of teachers' salaries in 447 cities of the United States, having each more than 4000 inhabitants, is as follows:

RANGE OF SALARIES.	NO. OF PLACES.	PER CENT. OF TOTAL.
Less than $1000	291	65
1000	22	5
From 1000 to 1500	94	21
From 1500 to 2000	35	8
From 2000 to 2500	5	1

Of the 291 places in the first category, 248 exceed $500 in salary. The average salary of assistant teachers for 467 cities is found to be $508. Some of the highest paying cities are not included in this tabulation, notably Boston, which in 1887–88 reached an average of $958 on all classes of teachers, principals, and assistants, numbering altogether a force of 1221 persons. San Francisco, which is included in the foregoing table, reaches a still higher average, viz., for principal teachers $1741, and for all others $908. The force is smaller than that of Boston, numbering about 800 persons. New York City, with a force of about 4200 teachers, shows an average annual salary of $1900 for principals and of $730 for all other teachers.

These rates are considerably above the maximum paid in German cities, but possibly they do not represent relatively larger incomes. The comparative value of money in different countries is a subject of much dispute, but I believe it is generally conceded to be greater in Germany than in America.

I recall that in 1885, an English head-master, Mr. R. Wild, president of the National Teachers' Union, maintained that Continental teachers were better off than their English compeers on account of their secure tenure and pensions. At that time the average annual salary for certificated masters in England was $605, and of certificated mistresses $365.75. Mr. Mundella challenged the statement, offering to pay part of the expenses of a Continental tour to the delegate who should bring satisfactory evidence of its correctness. Mr. Wild made the tour and as a result submitted a report full of interest and suggestion. He ascertained among other particulars, that in Berlin the average annual salary of 707 assistant mistresses was $365; that of 1385 assistant masters, $558; and that of 137 head-masters, $885; or a general average of $515, with the addition in every case of free residence, light, and fire.[1] The Berlin teachers seemed to Mr. Wild better off than the London teachers, although the average salary of head-masters in London had reached $1095, and the general average for all teachers $580. It was generally felt that Mr. Wild had sustained his point.

---

[1] For Mr. Wild's full report, see *The Schoolmaster* (London), April 11, 1885, pp. 557–58.

Pension provisions occupied a prominent place in Mr. Wild's report. The general regulations in Prussia respecting this matter are as follows: 25 per cent. of salary after 20 years' service; 50 per cent. after 30 years; 75 per cent. after 40 years; and the full salary after 50 years. The State requires all teachers to pay an annual premium into the pension fund, rated at 1 per cent. of a salary of $400, at 1½ per cent. of salaries from $400 to $1000, and at 2 per cent. of all higher salaries. It frequently happens that the city or commune pays the premium for the teachers, and also adds to the amount of the legal pension. One head teacher, who calculated his pension with Mr. Wild, indulged the expectation of 2985 marks from the State, which amount, he said, would be increased by the city to 3000 marks, or $750.

In both France and Germany the teacher's pension or a part of it at least, may be continued after his death to his widow and minor children.

In the other German States and also in Holland, Belgium, Denmark, Austria, and Russia the pension is a feature of the educational system. In Belgium Mr. Wild encountered a teacher who was the fortunate recipient of a pension of $1000 per annum. This is an extreme case, however, the pension in that country usually ranging between $200 and $400. In Switzerland, pension regulations, like all other educational interests, are settled by the individual cantons. Some of these maintain pensions, others do not.

Turning to the Scandinavian peninsula we find life characterized by a general simplicity and contentment, in which the teachers fully share. Their office is held in high esteem, and their salaries, although small, are sufficient to raise them above the state of ordinary laborers. Thus, the average salary of adult workmen is placed at 12.48 crowns a week, which would give an annual wage for steady work of $73.68.[1] Against this we find the lowest annual salary for regular teachers to be $165.50, besides house, fire, garden, and feed for a cow. After five years this salary must be raised to $194.50. In large towns annual salaries range from $338 to $519 for men and from $278 to $375 for women, rising in Stockholm as high as $666.50 for men and $444.40 for women. The State co-operates with the communities to maintain a pension fund which secures to retired teachers after 30 years of service an annual income of about three-fourths the mean salary. As regards Norway, a bill providing for the pensioning of teachers is now before the Storthing.

---

[1] Les Conditions du Travail en Suède et en Norwège, p. 17. Repport addresse au Ministre des Affaires Etrangères, par M. René Millet, Ministre de la Republique Française à Stockholm.

The peculiar feature of this bill is that it vests the power of settling a teacher's pension, as well as the payment of it, in the local authorities. This appears to be somewhat anomalous, since the greater part of the salaries are provided from the public funds. It is, however, thought that the local authorities will be better judges than the general government of the circumstances affecting individual cases. Although Norway has not had the benefit of a pension law, it has been customary for the Storthing to grant special pensions to aged or disabled teachers.

In the southern countries of Europe popular education is practically in a backward state, but the theoretical provisions are definite and minute. In Italy the fixed minimum salaries for men range from $100 to $240 per annum, a reduction of one-third being made for women. In Spain, where there is no discrimination between the sexes, salaries are divided into seven grades based upon the population of communes. The range is from $125 to $600.

In both of these southern kingdoms there is a pension provision, that of Italy being of very recent date.

Great Britain affords the only conspicuous example of a European country maintaining a public system of education, but making no provision for teachers worn out in its service. The absence of such provision is easily understood when the peculiar structure of the English system is taken into account.

By the Act of 1870 the government simply assumed the right to see to it that accommodation was provided in efficient schools for all children of school age. To this end the local rates (*i. e.*, taxes) were made contributory to the support of elementary schools, and orders issued for the election of school boards charged with the duty of establishing and maintaining schools. The annual parliamentary grant, which had been instituted as early as 1833, was greatly increased, the basis of its distribution changed, and denominational and other private schools admitted to share in its bounty on the same general terms as public schools. The largest possible liberty compatible with the economical expenditure of the grant was accorded to local managers. This policy, which differs widely from the authoritative and pervading control of Continental governments, was naturally opposed to any uniform provision for teachers. They were not regarded as state officials and their salaries and tenure were left to the control of local managers. Naturally these provisions differ as widely as do those of American States. The Scottish system, which is keyed on a much higher tone than that of England, is like it in respect to local independence. The British government has, however, several times committed itself to a pension policy.

In 1846 a Minute was adopted providing pensions for certificated teachers in State-aided schools. This was rescinded in 1862, but renewed in 1876 as an act of justice with respect to all teachers engaged before 1862. Moreover, by an act of 1879 the government instituted a pension fund for Irish teachers engaged in the "National Schools," which are operated on a totally different plan from the English schools. A pension scheme for teachers is therefore not foreign to English political thought. The average salaries of English teachers have already been given, but these being averages of totally dissimilar particulars, are comparatively meaningless. We can form a better idea of the pecuniary promise of the service from the representations of those who are personally familiar with living conditions in England. The subject was pretty thoroughly discussed at the annual meeting of the National Union of Elementary Teachers held in April last. The president, Mr. Collins, in his address, called attention to the fact that 1000 head-masters received each less than $375 per annum, and 3684 less than $500, head-mistresses faring even worse. Outside of the chief cities assistant teachers have little to hope for. In the prosperous borough of Salford the maximum salary for an assistant master is $400 per annum, and for assistant mistresses $270. These salaries cover a full year's work, and upon them the teacher is expected to maintain a respectable appearance and provide for the day when the "keepers of the house shall tremble"; for under present circumstances most assistants must remain in that capacity to the end of the chapter. Mr. Collins noted that the lowest class of government clerks fare much better, and that college graduates entering the metropolitan police force, as some have done, have better chances for a comfortable living than the rank and file of teachers. Even a dustman, employed by the Works and General Purposes Committee of a London parish, received higher compensation than the average wages paid assistant teachers in the borough cited above. With these cases in mind it is easy to understand why it is that salaries and pensions have become burning questions in England. This is the more significant to us since English teachers resemble our own in their love of independence and in their opposition to fixed and invidious class distinctions. On the other hand, the English teachers have less of that careless optimism which takes the chances of a better to-morrow and give themselves more earnestly to organized effort for the improvement of their condition. The passage of a pension bill is one of the measures for which they have long contended and which they have at last the satisfaction of seeing presented to Parliament.

Two superannuation bills have in fact been introduced, one by Sir Richard Temple, member of the London School Board, drawn up in the interests of the metropolitan teachers, and the other a general measure for all teachers. A select committee has been appointed to consider the proposals and the success of the general measure appears to be a foregone conclusion. It is in accordance with the recommendations of the

Commissioners appointed to investigate the operations of the Education Act. It is also supported very generally by the press, and will have able advocacy when it comes up for public discussion. The provisions of the bill are substantially the same as those of the Prussian regulations. The pension is to be available for certificated masters at 60 years of age, for mistresses at 55 years of age, and also for teachers who become incapacitated for duty after ten years of service. Teachers are to pay an annual premium of 4 per cent. of their salaries into the pension fund. An ordinary pension is to be reckoned at $\frac{1}{60}$ of the annual salary at the date of retirement for each completed year of service. The measure does not extend to Scotland or to Ireland, buti ts passage is quite certain to be followed by similar legislation in their behalf.

The outcome of the agitation in England seems to be the strongest possible evidence of the necessity of a pension policy for teachers. Without a measure of this kind the most faithful and competent teachers are in danger of coming to want in their old age, or must often be retained in active service long after the time when they are able to discharge its duties effectively. If anything could add force to the English demand it would be the fact that Ontario, whose system of education bears in every feature the stamp of the master-mind of Mr. Ryerson, maintains a superannuation fund.

The British colonies, as a rule, have not yet evolved this provision. In the Australian colonies salaries average well. Moreover, as in parts of our own country, occupations are easily changed, and teaching is for the most part a stepping-stone to something more lucrative. This is, however, a condition which necessarily passes away as population increases, social conditions assume a fixed state and business competition becomes more keen. A ripple of the movement which has been traced above is already noticeable in the newly federated Australian States. Meanwhile liberal pensions are granted in special cases. Thus in 1885 twelve teachers in South Australia received retiring allowances averaging $815 each. In New South Wales a teacher of music in one of the

Training Colleges received $4170 on withdrawing from the work.

The survey above presented discloses a universal drift toward the pension policy which is certainly not accidental. It is all but universally admitted that the education of the young is a public duty. Even Tolstoï, who scouts all accepted systems of education, does not deny the necessity of the thing itself. The theory that the rates of compensation for teaching can be left to the action of ordinary business principles is thoroughly exploded. It is a matter to be regulated by the State, and the State cannot afford to keep its teachers on starvation salaries.

A. TOLMAN SMITH.

BUREAU OF EDUCATION,
WASHINGTON, D. C.

IV.

TWELVE *VERSUS* TEN.

To the solid ground
Of Nature trusts the mind that builds for aye.
WORDSWORTH.

In any developed system of numeration there must be a turning-point, at which the notation is folded back upon itself, and from which point on the higher numbers are to be expressed by additive and multiplicative processes through the lower. The number that forms thus at once a point of rest and a point of departure may be called the *base* or *radix* of the system. The rising powers of this base are set in order leftward, and the falling powers rightward, of the initial or unit's position. Any natural number other than unity may be taken as this radix, and, in fact, various integers, as two, five, ten, twelve, twenty, sixty, have been taken. Among all of these, however, *ten* has attained by far the widest and most complete recognition, and within the present century the metric decimal system has established itself firmly in western and central Continental Europe, as well as among men of science everywhere. Nor can there be any doubt of its immense superiority as a labor-saving device over every rival, so long as ten is made the turning-point in our notation. In fact, the thorough-going adoption of it or of its equivalent must follow in time as a natural logical outgrowth of a reversion of our notation back upon itself at the ten-point.

This preference for ten as radix does not, however, rest upon any natural or spiritual basis, upon any inherent fitness of ten itself to discharge this supreme function in arithmetic, but solely upon a physical peculiarity of the counting animal, man. He is a pentadactyl, he has ten fingers. Inasmuch as elementary reckoning is almost always done on the fingers in its first stages and by the young, whether in individual or educational or national life, it was almost inevitable that ten should be taken as the point of reflection. If only one hand be used, then five presents itself as radix, or if both hands and feet, then twenty, and both of these numbers have indeed served as radices.

But none of these related integers has any intrinsic fitness for the office in question. To be sure, ten is resolvable into the factors two and five, and the first of these is important—the operation of taking the half is so frequently necessary; but not so with five—we have comparatively little use for fifth parts, while on the other hand we meet with thirds and fourths at every turn and in every department of life. But ten is not divisible by either three or four and stands in no simple relation to either six or eight, two other important numbers. These are very serious defects in ten as a radix, and they encumber very gravely all reckoning and especially practical calculation in the denary system or with decimals. Thus, the constantly recurrent fraction $\frac{1}{3}$ is expressible only through an interminate decimal, $\frac{1}{4}$ requires two figures, $\frac{1}{6}$ is interminate as a decimal, $\frac{1}{8}$ requires three figures for its expression. These are very weighty burdens, which the general and final adoption of the decimal system will bind upon the back of humanity forever. Neither will any conceivable development of human intelligence lighten them in the least, for they inhere in the unalterable nature of the number ten.

But there is an altogether simple and easy deliverance lying ready at hand. It is the rejection of the unsuitable radix ten and the adoption of *twelve*, which is fitted perfectly and in every particular. It may be divided by two, by three, by four, by six; it is related simply to eight and nine. It is this superior divisibility that marks it out among all numbers as pre-eminently the *natural* radix, a divisibility shared with its own multiples only, as 24, 36, etc. It is the contention of this article that a change from the denary to the duodenary notation would be a great and much-needed simplification, above all to the practical man, and that it is entirely feasible. Let us examine the matter in detail.

1. Of course, the adoption of twelve as basis would necessitate the introduction of two new symbols for ten and eleven, since 10 would then no longer signify *ten* but *twelve*. This need, however, would be a mere trifle, and most easily supplied. Appropriate symbols may be readily devised, but we shall content ourselves for the present with the initals *t* and *e*.

2. The second step may be taken with equal facility: to invent a simple and consistent nomenclature. Manifestly the names thirteen, fourteen, twenty, thirty, hundred, thousand, must now lose whatever appropriateness some of them may once have had. But in devising new names we must obey the natural impulses of reason and linguistic sense as indicated in some of the names to be abolished. Instead of TY, the reminiscence of ten, in twen*ty*, etc., we may put *tel*, a like reminder of twelve. We recognize also the inevitable and irresistible tendency of frequent use to break down harder combinations of sound into easier ones, and we should adopt extremely simple forms at the outset. Here, then, is a body of terms that would at least answer perfectly our purpose:

One, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve; *tel* one, tel two, tel three, tel four, tel five, tel six, tel *sen*, tel eight, tel nine, tel ten, tel*len*, twen*tel;* twentel one, twentel two, etc.; thirtel, fortel, fiftel, sixtel, *sen*tel, eightel, ninetel, tentel, *len*tel; dipo, tripo, tetrapo, etc., N– po. The termination PO will be at once recognized as an abbreviation both of *power* and *position*, and in fact the second power of twelve occupies the second position to the left of the unit place, which latter counts not as the first but as the *zeroth* position. These names depart as little as possible from familiar ones and may all be learned in five minutes.

3. The superiority of twelve over ten as a radix will begin to be revealed in the multiplication table:

2× 1= 2
2× 2= 4
2× 3= 6
2× 4= 8
2× 5= t
2× 6=10
2× 7=12
2× 8=14
2× 9=16
2× t=18
2× e=1t
2×10=20
3× 1= 3
3× 2= 6
3× 3= 9
3× 4=10
3× 5=13
3× 6=16
3× 7=19
3× 8=20
3× 9=23
3× t=26
3× e=29
3×10=30
4× 1= 4
4× 2= 8
4× 3=10
4× 4=14
4× 5=18
4× 6=20
4× 7=24
4× 8=28
4× 9=30
4× t=34
4× e=38
4×10=40
5× 1= 5
5× 2= t
5× 3=13
5× 4=18
5× 5=21
5× 6=26
5× 7=2e
5× 8=34
5× 9=39
5× t=42
5× e=47
5×10=50
6× 1= 6
6× 2=10
6× 3=16
6× 4=20
6× 5=26
6× 6=30
6× 7=36
6× 8=40
6× 9=46
6× t=50
6× e=56
6×10=60
7× 1= 7
7× 2=12
7× 3=19
7× 4=24
7× 5=2e
7× 6=36
7× 7=41
7× 8=48
7× 9=53
7× t=5t
7× e=65
7×10=70
8× 1= 8
8× 2=14
8× 3=20
8× 4=28
8× 5=34
8× 6=40
8× 7=48
8× 8=54
8× 9=60
8× t=68
8× e=74
8×10=80
9× 1= 9
9× 2=16
9× 3=23
9× 4=30
9× 5=39
9× 6=46
9× 7=53
9× 8=60
9× 9=69
9× t=76
9× e=83
9×10=90
t× 1= t
t× 2=18
t× 3=26
t× 4=34
t× 5=42
t× 6=50
t× 7=5t
t× 8=68
t× 9=76
t× t=84
t× e=92
t×10=90
e× 1= e
e× 2=1t
e× 3=29
e× 4=38
e× 5=47
e× 6=56
e× 7=65
e× 8=74
e× 9=83
e× t=92
e× e=t1
e×10=e0

We may add $10\times 10=10^2=100=$Dipo.

We note that since 100 in this system equals 144 in the common system, the range and efficiency of our table are increased by 44 per cent. More than this, however, it is much simpler than the ordinary. The multiplication by five and ten is indeed less simple, but the multiplication by two remains as simple as before, multiplication by eleven becomes as simple as was multiplication by nine, while multiplication by three, four, six, seven, eight, nine is much simplified. For each of these, except seven, there is a simple cycle, through which the last figure in the product moves: for 3 the cycle is 3, 6, 9, 0; for 4 it is 4, 8, 0; for 6 it is 6, 0; for 8 it is 8, 4, 0; for 9 it is 9, 6, 3, 0. The cycles for 3 and 9 are conjugate, each the reverse of the other, and so are the cycles for 4 and 8, while the cycle for 6 is its *own reverse*, it is *self-conjugate*. The cycles for 5 and 7 are conjugate, and each involves all the primary numbers. It is plain that in any system the cycles of two conjugates (whose sum is the base) will be conjugate and that the sum of two corresponding digits will be the base. The successive even multiples of 7 end in the successive even numbers, while the first digit is half the multiplier—circumstances that greatly simplify multiplication by this number. Every third multiple of 5 ends in the multiplier. Squares of multiples of 6 end in 0, squares of all other even numbers end in 4; squares of prime numbers (except 3 and 2) all end in 1; squares of numbers ending in 3 or 9 end in 9. The ordinary table furnishes no parallels in simplicity to these relations. Factoring becomes comparatively easy in this duodenary scale. Even numbers are of course recognized at once, all ending in 0, 3, 6, or 9 are divisible by 3; ending in 0, 4, or 8 they are divisible by 4; ending in 0 or 6, they contain the factor 6; ending in 0 or 8 preceded by an even digit, or in 4 preceded by an odd digit, they may be divided by 8; and so on.

4. The common useful fractions are easily and simply expressed in duodecimals; thus, $\frac{1}{2}$=.6, $\frac{1}{3}$=.4, $\frac{1}{4}$=.3, $\frac{1}{6}$=.2, $\frac{1}{8}$=.16, $\frac{1}{9}$=.14—a most important consideration; while the expressions for the practically useless fractions are interesting though interminate: thus, $\frac{1}{5}$=.24972. . . , $\frac{1}{7}$=.186t351. . . , $\frac{1}{t}$=.124972. . . We observe that the repetend in $\frac{1}{5}$ and in $\frac{1}{t}$ is the same, while in the repetend of $\frac{1}{7}$ we have 1+t=8+3=6+5=e. Other curious relations may be traced out.

5. The expression of large numbers becomes measurably conciser; thus, all below 144 (in the present system) are expressed by two figures at most; all below 1728 by three figures at most, all below 20736 by four figures at most; and so on. Inasmuch as it is *at least* as easy to multiply in the twelve as in the ten scale, this reduction in the number of figures corresponds to a proportional reduction not only in mechanical but also in logical labor.

6. In the expression of irrational numerics through duodecimals a much higher degree of accuracy is obtained than by the use of the same number of digits in decimals. Thus, in dropping all decimals beyond the second place, the error committed is less than one-half of $\frac{1}{100}$, but in duodecimals it is less than half of $\frac{1}{144}$; so the other corresponding errors in the two systems are less than half of $\frac{1}{1000}$ and $\frac{1}{1728}$, $\frac{1}{10000}$ and $\frac{1}{20736}$ and so on. In a 7-place logarithmic table the error introduced in the use of

the 7th digit is less than half of $\frac{1}{10,000,000}$, in the duodenary system it would be less than half of $\frac{1}{53,111,808}$; a fivefold accuracy is gained without additional labor. Similarly in the inverse use of the table.

All the foregoing advantages lie securely rooted either in the slightly superior size or in the greatly superior divisibility of the number twelve; they are all intrinsic and inalienable. The following have an importance at least equal, but of another nature—extrinsic and derived from certain immemorial prescriptions in which twelve has successfully asserted its higher claims as the *natural* radix. Thus, there are twelve months in the year and twelve hours in the half day. Both these divisions of time may—one might almost say must—stand, but they are inconvenient so long as ten dominates our calculations. Let us consider.

7. The circle of the clock-face is divided into twelve *hours*, each of these into 60 *minutes*, each of these into 60 *seconds*. On the other hand, the circle, or round angle, is divided into 360 degrees, each of these into 60 *minutes*, each of these into 60 *seconds*. The origin of this sexagesimal division is very interesting, but its perpetuation is very unreasonable, unnatural, and bewildering; it vexes and confounds the child's mind, and consumes time to no purpose in every conversion of longitude and time into each other. Let the division into twelve hours stand; but let it be of the half-circle, so that the whole circum-angle shall be divided into 24 (or in our notation 20) hours; divide each of these into twelve grades, each of these into twelve primes, each of these into twelve seconds, and so on. The metric number of the half-circle or straight angle, radian being unit, is π; hence the quasi-equation $\pi = 10$. In a round angle there will be 200 grades, in a straight angle 100 (dipo), in a right angle 60, in a sextant 40, in an octant 30; the other important angles (of 30 and 15 degrees) will contain 20 (twentel) and 10 (twelve) grades. Surely this would be a great simplification, shunting an enormous amount of labor and confusion. The grade, corresponding to five minutes of time, would be a very convenient standard of reference. We

should then say "in a grade," as we now say "in five minutes" or "in a minute" (meaning "five minutes").

8. Our present division of the year into twelve months of unequal length is puzzling, irrational, and inconvenient. Let there be twelve months of thirty days each, and let the year begin at the vernal equinox, the natural starting-point. There remain five days to be disposed of. Let these be legal holidays with special names, extra-mensual, belonging to no month. Let them mark the stations of the sun's progress through the sky and be: New Year's day, first quarter-day, mid-year's day, second quarter-day, Old Year's day. They might otherwise be named *Vernequid*, upper *Solstid*, *Autumnequid*, lower *Solstid*, *Vernequin*. Leap year would require the intercalation of a day at mid-year, which might be called *Autumnequin*. The lower *Solstid* would coincide practically with Christmas, and the sacred festival might be transferred without perceptible jar to that day, for symbolic reasons the most appropriate in the year for the feast in question. On the other hand the upper *Solstid* would nearly coincide with the Fourth of July, and both our national celebration and the French fête of the Fourteenth might easily be slightly shifted without offense to the patriotic conscience. The two solstids would then stand, the one for our political, the other for our religious, faith. The names of the months need not be changed; it would suffice to push their beginnings ten days backward. Even in modern times greater changes have been made in the calendar.

9. Our coinage could be made duodecimal with very little trouble. We need only reduce our *quarter* to twenty-four cents, or count it as twenty-four cents, and adopt it as unit. The twelfth would be a penny, which might of course be still further sub-divided, though there would be little use for lower denominations. The twelve-quarter (tel-kar?), about three dollars, would take the place of the current V, which is rather inconveniently large for most of us in these days of low prices and lower salaries. The ease of dealing with thirds and fourths would be greatly valued by the man of business, while

the reduction in value of the unit would put the whole Anglo-Saxon world in line (quarter=shilling=mark, practically or with slight adjustment), and what is far more, it would be an important lesson to the masses in domestic economy. *Four marks* may not quite equal *one dollar*, but it sounds bigger and we should be more careful in spending it. *Experto crede.*

10. The fundamental measurement is of *length*, and the most important of all units is the *linear*. The hunt for a *natural* unit of length is to be sure a very interesting and instructive one, especially inspiring when led on by such "winged hounds of Zeus" as Maxwell and Thompson. As for practical results, however, it is a kind of red-fox chase, yielding much fun but little fur. It is in vain that the *meter* professes to be the ten-millionth of a quadrant through Paris; it is no such thing, and even if it were,—*cui bono?* It is really a purely arbitrary length carefully preserved. Any other standard will in last analysis prove to be equally arbitrary. The British *yard*, familiar to all of us, is as good as any. It is already divided into twelfths, each of three inches. Call this twelfth a *trinch*. The twelfth of this last would be our well-known quarter-inch, a very convenient unit for small lengths and, of course, capable of any degree of sub-division. For greater measurements we have already at hand the *mile*, 1760 yards, or, with a slight accommodation, 1728, that is 1000 (tripo) yards. For the immense stretches of astronomy the square, or even the cube, of this would be suited. So we may pass from the decimal to the duodecimal system in this cardinal matter with hardly a jar and with loss of naught but impedimenta. The areal and voluminal units would, of course, be the squares and cubes of the linear units; the mass-units would be the mass of the voluminal unit of some standard substance under standard conditions. Other dĕrivative units require no notice.

11. The operations of mercantile and commercial as well as of mechanical life would be greatly shortened and facilitated by the change proposed. For example, a movement of the duodecimal point one place leftward would convert yearly into

monthly interest. Multiplication and division by three and four, so important in "business," at every step would check each other.

The construction of instruments for all kinds of measurement, whether of commerce or of scientific precision, would be made easy and their correct use facilitated.

Most of all, however, the enormous burden of learning, retaining, and using our tables of weights and measures would be rolled off once and forever in one huge mass from the minds of the coming generation. How great is the load that our forefathers, unknowing what they did, have bound upon the shoulders of their descendants is felt keenly, if only in part, by every pupil and every teacher. Like the superincumbent atmosphere, it presses on us continually and continuously, at every point both of time and of space. For this very reason we cannot come to perfect consciousness of the oppression. But once relieve it, and see how the elastic mind of youth will revive and erect itself, once more a freeman. Adopt the duodenary system *in toto*, and you despoil at one stroke the great giant Arithmos of his most formidable terrors. Nay more, you will add a full year, now so greatly desiderated, to the life of every youth that attains majority.

12. The complete triumph, either of ten or of twelve, is assured. The incoherences of our present system are universally recognized, and the structure cannot long withstand the blows of Example and of Reason. But the victory of ten would certainly be deplorable, for it would exalt body over spirit, and fasten clogs forever on the feet of humanity. The denary system can lay no claim to finality, as being the best either conceivable or practicable; it leaves much to be desired. But the duodenary *is* the best conceivable, the best that the *nature of number* admits. It and it only can pretend to be an absolute finality.

13. The triumph of ten is the triumph of the Kelt, of Latin civilization. The Anglo-Saxon, truer to the nature of things, still clings here and there to twelve. And shall he at last meekly resign himself to artificiality? Shall the historian of

the fourth millenium record that France imposed upon the superior Anglo-Saxon race her own inferior notation? Here is opportunity and also occasion for our proud lineage to assert itself, as the roof and crown of humanity, by one bold stroke that shall smite from our intellectual limbs the shackles of centuries and leave them strong and nimble and free. But especially it is the privilege of America to advance herself at one giant stride to the forefront of the world, not only in politics, but also in practical intelligence, by adopting consistently and thoroughgoingly that metric and numerical system which, once introduced, must surely and speedily subdue all others to itself. What other conceivable feat, either of peace or of war, could so glorify our intelligence and civilization as a people?

But some one will say, "after all, is the change *practicable?*" The discerning reader might be left to answer for himself. The change to the decimal system has been proved by actual experiment to be practicable throughout western and central Europe. The change to duodecimals would be even easier for us, because twelve already lies deep-rooted in many of our notions and modes of measuring. The only peculiar difficulty about this change is in reality a very slight and unimportant one, namely, we need two new symbols (for ten and eleven), a new termination (for multiples of twelve), and a half-dozen new names (for powers of twelve). But any foundry can cast the symbols, the ending *tel* is ready at hand, and the new names are coined and learned in a moment. This done, learning to count, add, subtract, multiply, divide in the new system is not the work of a day for the adult mind, and would be easier for the child than the tasks he now has to master.

To be sure, there would be a great inertia of custom, ignorance, and prejudice to overcome, but these oppose themselves alike to all progress.

A thorough-going adoption, either of the decimal or of the duodecimal system, is unavoidable and impending. If we choose the latter, all future generations will rise up and call us blessed; if the former, then we shall put into the mouth of posterity, but with sharper emphasis, with wider application, and with deeper meaning than ever Mephistopheles dreamed of, the just complaint:

> Es erben sich Gesetz, und Rechte,
> Wie eine ew'ge Krankheit fort;
> Sie schleppen von Geschlecht sich zum Geschlechte,
> Und rücken sacht von Ort zu Ort.
> Vernunft wird Unsinn, Wohlthat Plage;
> Weh dir, dass du ein Enkel bist!
> Vom Rechte, das mit uns geboren ist,
> Von dem ist, leider! nie die Frage.

WILLIAM B. SMITH.

UNIVERSITY OF MISSOURI,
COLUMBIA, MO.

V

DISCUSSIONS.

WOMEN AS TEACHERS.

The general conference of the Joint Education Committees of Wales and Monmouthshire has undertaken to collect systematically certain definite information regarding the success of women as teachers. A number of the question-blanks were forwarded to this country, and it is now possible to lay before the readers of the EDUCATIONAL REVIEW a summary of the answers that have been received and transmitted to England. The Commissioner of Education and the Superintendents of representative cities in which large numbers of women are employed as teachers, were invited to answer the inquiries. The Commissioner of Education responds, giving his impressions and conclusions regarding the United States as a whole, where the last census shows that 65.5 per cent. of the entire teaching body, or 238,333, are women. Each Superintendent responds for his own city, the number of women teachers in the public schools being as follows: New York, 3282; Chicago, 2811; Philadelphia, 2601; Brooklyn, 1968; Boston, 1308; Cleveland, 733; Jersey City, 393; Denver, 260. The questions and answers are appended:

I. Are women employed as teachers of classes either (*a*) of boys only, or (*b*) boys and girls together?

The Commissioner of Education: In the schools of the United States, women are employed as teachers of classes in many schools exclusively for boys, but the employment of women as teachers of classes of boys and girls together is much more frequent.

New York: (*a*) Yes; (*b*) Yes.

Chicago: (*a*) There are no exclusively boys' classes; (*b*) Yes.

Philadelphia: (*a*) Yes; (*b*) Yes.

Brooklyn: (*a*) Yes; (*b*) Yes.

Boston: (*a*) Yes; (*b*) Yes.

Cleveland: (*a*) No separate classes for boys; (*b*) Yes.

Jersey City: (*a*) Yes; (*b*) Yes.

Denver: (*b*) Yes.

II. If so, (1) in what subjects; (2) to children of what ages; (3) of what classes of life?

New York: (1) In all the subjects assigned to the class. (2) No rule as to age. All teachers in the primary schools and departments are female. In male and mixed grammar departments, the lower and middle grades are taught by women. (3) All classes.

Chicago: 1. All subjects in primary, grammar, and high school grades. 2. From 6 to 20. 3. All classes.

Philadelphia: 1. All the branches of the public school course. 2. Children from 6 to 14 years of age, and also the young women in the Girls' High and Normal Schools. 3. Children of rich and poor alike.

Brooklyn: 1. All the subjects taught below the High Schools. 2. All ages—minimum 5 years, maximum about 16 years. 3. All classes.

Boston: Women teach all the branches in the public school course, to children of all ages and of all classes in life.

Cleveland: 1. All the subjects taught in the first eight years —arithmetic, grammar, geography, history of the United States, reading, writing, spelling, drawing, music, and physical training. 2. From 6 to 14 years. 3. All classes.

Jersey City: 1. All except High School. 2. All ages. 3. All classes.

Denver: 1. All. 2. From 6 to 21 years. 3. All.

III. How far are they successful (*a*) in giving intellectual training; (*b*) in maintaining discipline and order?

The Commissioner of Education: Women, I think, as a rule succeed better than men in getting work out of pupils of all kinds. The intellectual training which they give is therefore better up to a certain point, than that given by men. They also maintain better discipline and order than men, and with less corporal punishment. But there is a drawback to the intellectual training and discipline of the women in the fact that their training is more like that of the family and less like that of the State. It is evident that the child needs both of these kinds of training, and therefore he should have instruction from male as well as female teachers.

New York: No reason to doubt their efficiency in either respect.

Chicago: They stand on an equal plane with men in both respects.

Philadelphia: Women are very successful in both respects; they are fully equal to men in maintaining order.

Brooklyn: There are, of course, marked differences in the personal ability, power, and skill of teachers, both male and female. In general, women are fairly — many of them, eminently—successful in both respects.

Boston: Women are entirely successful in both particulars.

Cleveland: (*a*) Eminently successful. (*b*) Very satisfactory.

Jersey City: Successful in both respects.

Denver: Successful in both respects.

IV. Does their work under any of the foregoing heads require supplementing by that of men?

The Commissioner of Education: The work of women in any of the grades from the primary up to the college does not need supplementing by men for any reasons of scholarship, but it is generally believed that the young should have the personal influence of both men and women as teachers. As a class the women are apt to be minute and exacting, and this, when it develops into a fault, takes the form of petulance in manner and mechanical precision in methods. The men are more apt, as a class, to discriminate in regard to essentials, and to teach their pupils to discriminate in regard to principles and essentials, and to lay less stress upon mechanical details. This tendency often degenerates into a carelessness in discipline and instruction which permits pupils to neglect details that are essential to progress.

New York: Each teacher is responsible for the instruction and discipline of her own class.

Chicago: College-bred men are employed in the upper grades of the High Schools.

Philadelphia: It is a great advantage for the work of women, especially in the upper grades and for boys, to be supplemented by that of men.

Brooklyn: No; until pupils pass out from the Grammar into the High Schools.

Boston: No; except that men are preferred at the head of large schools.

Cleveland: Not at all.

Jersey City: No.

Denver: It does not require supplementing, but is improved by "sandwiching."

V. How does their remuneration compare with that of male teachers of the same social and intellectual standing?

The Commissioner of Education: Some cities make no discrimination in salaries, but in general the salary of women is about 60 per cent. that of men.

New York: Salary of the principal of a male or mixed grammar school, $2250 to $3000; salary of a vice-principal of the same, $1800 to $2016; salary of a principal of a female grammar school, $1200 to $1700; salary of a vice-principal of the same $1000 to $1200; salary of a male assistant teacher, $1080 to $2016; salary of a female assistant leader teacher, $504 to $1116.

Chicago: The same for the same grade of work.

Philadelphia: In positions that may be filled by either men or women, the remuneration is the same for both.

Brooklyn: It is the same for the same grade of work.

Boston: For the same work the pay is the same. The only exception to this is the fact that male assistants in boys' high schools are paid higher salaries than women assistants in girls' high schools. Reason: It has always been so.

Cleveland: About the same, although we do not employ men below the high school.

Jersey City: It is about one-half.

Denver: Slightly less on the average, although often equal.

VI. In what proportion do married women act as teachers, and is it found that they are at any disadvantage as compared with those who are unmarried?

The Commissioner of Education: In those cities where married women act as teachers, I think it is often found that they have an advantage as compared with those who are unmarried; but the tendency in cities is to discriminate against married women. Some have gone so far as to exclude them by rule from the corps of teachers.

New York: "Should a female teacher marry, her place shall thereupon become vacant. No married woman shall be appointed teacher or principal without the consent of a majority of all the members of the Board of Education."—*By-Laws*, Sec. 44.

Chicago: Teachers are permitted to marry without let or hindrance. Many of the best teachers are married women and mothers.

Philadelphia: There are a few married women who teach in the public schools, and it is found that they are at no disadvantage.

Brooklyn: The proportion of married women is small. The disadvantage, if any, under which they work is not so marked as to call for special notice.

Boston: There is an unwritten rule against employing married women, but they are employed to the extent perhaps of one or two in a hundred. They are excellent teachers.

Cleveland: A few are employed and they are unusually strong teachers.

Jersey City: There are few married teachers, say 3 per cent. They are at no disadvantage.

Denver: Numbers of married women are employed, always with equally good, and often with better results.

THE EDITORS.

CITY SCHOOL SUPERVISION.—II.

The superintendent in entering upon a new field of labor very naturally takes a full survey of the entire situation. Having informed himself of the financial resources and liabilities of the district, he proceeds to make an inventory of the school work proper. This he cannot do till he inspects the work in the most thorough manner. He starts in with his ideal as to what a school or a system of schools ought to be. If the Idea be the foundation for a system of philosophy, the ideal in the superintendent's mind is the guide which determines his efforts in securing the best results with the means at his command. In making up his inventory, it is certainly the part of wisdom to keep matters largely, or almost exclusively, to himself, except in so far as he communicates to those in authority over him. Having determined the condition of a school or a system of schools, the next step is to pick out the strong points and set them off by themselves, and then to note all the weak and sore spots and catalogue them. Defects must be conquered in detail, by attacking one at a time. To point out a fault and not to provide a remedy for it, is to employ the destructive process without the ability to reconstruct something better than what has been displaced. It is a principle in the common law that wherever a wrong exists a remedy is provided for it, and the same line of action is, or ought to be, true in all school work.

When the superintendent sets about improving the schools under his control, three or four courses are open to him: He may work exclusively with the Principals; he may work with

Principals and teachers; he may work with the teachers, or he may work with some of the Principals and with some of the teachers.

I. To work exclusively with the Principals implies that the superintendent and his assistants, if he has any, advise with the Principals, and they, in turn, are to carry out the separate lines of policy in detail. This may be termed, for lack of a better name, military supervision—pretty good for the field, but not worth much in school work. It relies too much on the executive qualities of the Principals. This plan is not attempted except in very extensive systems, and yet it is sometimes aped under less imposing conditions. To insure its success, each Principal must be thoroughly qualified for the position he occupies, a condition not likely to occur in practice.

II. Coming in direct contact with both principals and teachers appears to be a more rational way of getting at the work. All good teachers like to be known to the superintendent, not only through the assistant superintendents and principals, but as individuals. It always pays to know the teachers individually. The feeling that in any event they will be treated justly by those who look after their work, goes a long way in improving the work of any set of teachers. There is only one force which produces first-class work, and it is that which comes from glad and voluntary effort. Cheerful work tells with both pupils and teachers.

III. In a large system, the superintendent cannot give his time exclusively to the teachers. There are so many demands upon his time that he is obliged to distribute it among many different persons and things.

IV. To work with some of the principals and some of the teachers, and practically to neglect the others, is so unjust that few would have the hardihood to attempt it. Yet it is sometimes done, owing to the unfortunate conditions existing in some cities.

The superintendent can choose one of these separate methods of work, or he may combine any two or more of them. To adapt himself readily to the environment is one of the essential qualifications which insures improvement or change with the least resistance. A school or system will always run for a time by virtue of its own inertia. By watching this movement a little, the superintendent is afforded an opportunity for studying the system in all of its relations.

Whenever one proposes a change, he is forced to consider whether the means at his command are adequate to effect what he wishes. It is one thing to discern an error or fault, and another thing to be able to correct it entirely. This question resolves itself into one of means and ends, or the measure of intelligent energy necessary to change the direction of the habits and modes of thought of a body of teachers. As a practical illustration, the superintendent decides to advise with the principal as to the strong and weak places in his school, and if the principal is able, capable, and discreet, he may then help each poor teacher to do better work. Of this, the superintendent must be the judge. As is well known, some principals irritate and weaken their teachers instead of helping them, and the same is doubtless true of the proffered assistance of some superintendents. This suggests another quality that should always exist in the superintendent and in the principal, namely, that of being able to approach teachers in a helpful spirit and without confusing and unsettling them. It is a question to be carefully considered which is the better person to give the teacher the needed assistance. The utmost frankness, not rudeness, should exist between the superintendent and principal, and unless the relations are entirely cordial between the principal and the teacher, the superintendent should speak with the teacher directly. This conversation ought to be entirely informal, and by adroit questions the teacher's opinions concerning all the points of his work should be fully ascertained. The teacher sees his school under one perspective, and if it be not the correct one, then the superintendent must help him to see it from his standpoint.

An efficient aid in supervising is the holding of meetings, weekly and monthly. At the principals' meetings the general policy of the schools is to be outlined, not by set speeches or rhetorical papers, but in a full, free, and candid talk. Here opinions from the more experienced and sagacious principals are expressed and the young, cranky, and unwise ones are greatly benefited. It is in such meetings that the superintendent has the best opportunity to bring forward what he regards as the best and freshest results from some of his own schools or from other schools. By taking what is the best in each good school and working all up to these highest attainments, he will produce a very strong system. To incorporate the best from many into each, is probably the true aim or supervision.

The superintendent may also do much in holding teachers' meetings, and if the corps be a large one, then the meetings should be held for separate grades. Instead of holding these as lecture or preaching meetings, definite subjects, such as are taught in the class-room, should be discussed. These discussions may fall under three separate heads: (1) The educational significance of each branch and how to teach it; (2) The manner, form, and spirit of discipline, and (3) New experiments in teaching at home and abroad. In all such discussions the teachers should be urged to participate freely, and among others of their own grade they are usually much readier to speak than in a promiscuous assemblage.

From among the best grade teachers the superintendent can always find some who are willing and anxious to try new experiments.

Connected with every system, there should be some experimenting rooms. The few reliable teachers should try the new experiments under the advice of the superintendent and principal, and after due trial, if an experiment is found worthy, it can be very easily introduced into other rooms. It is not safe for all teachers to experiment. Another danger consists in not knowing when or how to experiment. Growth does not come from standing still and repeating the same little processes day after day.

If the superintendent criticises in a general way at a teachers' meeting, no one takes the criticism personally, and hence it falls flat. A specific criticism followed by a specific remedy will always give the teacher a working basis, and whenever rubbish is cleared away, there is left a clean spot upon which to build.

A school system should not always present an even, unbroken front line. A wavy line appears more natural, and it indicates the progress of ambitious and skillful workers pushing onward and outward.

J. M. GREENWOOD.

SUPERINTENDENT OF SCHOOLS,
KANSAS CITY, MO.

PRACTICE TEACHING IN NORMAL SCHOOLS.—II.

APPRENTICESHIP IN TEACHING.

For reasons which will presently appear, I have given to my topic a title somewhat different from the one that was proposed to me by the editors. I am not orthodox in my opinions with respect to practice teaching in normal schools; and this paper will embody marked dissent from the received standards of belief and practice.

Universally throughout the West, so far as I know, and quite generally throughout the North and East, there is attached to normal schools what is called a practice or experimental school; that is, a school in which the students in training serve a sort of apprenticeship in teaching children in the various elementary branches for a specified number of hours a term or year. These schools sometimes represent the twelve grades of the common-school course, and sometimes a smaller number. Each distinct department of the practice school has its regular or responsible teacher who presides while the apprentice work is in progress; and over all is the critic teacher whose function is to witness the giving of the lesson by the tyro, and at an appointed hour to call together these pupil teachers and make a critical estimate of their performances. Each trial lesson is observed by a certain number of the student's classmates, who note the weak and the strong points in the exercise; and during the inquest they are summoned to express their opinions on the work they have witnessed. The judge or arbiter is the critic teacher, who gives a final estimate and summing up of each case. This is the usual *modus operandi*, as I have witnessed it in representative schools, and is my text for a few observations.

The general allegation that may be brought against this practice teaching is that the conditions under which it takes place are so artificial and unnatural that it is more likely to be harmful than helpful to those who take part in it. The student teacher knows that the pupils whom he is attempting to instruct are not his own and that he is only remotely responsible for results, seeing that they depend on so many others beside himself. His pupils are conscious of the same fact and owe no special allegiance to their temporary teacher.

It would be an abuse of language to call this real teaching.

And what stuff must a youth be made of, who can teach in the presence of five or six official critics, who with pencil and note-book in hand, are spying out the slightest departure from the established code of methods? Each question, each response, even each inflection and gesture must square with the code or the penalty will be paid when the hour of inquest comes. The artificial is at a premium; the student teacher is inevitably and strongly drawn away from the spontaneous and the natural toward routine and mechanism, which are the vices engendered and cultivated by this process of "training."

And what shall be said of the formal inquest, when, in the presence of the principal, heads of departments, teachers of methods, critic teacher and pupil critics, the student teachers are called up for trial? These official critics must criticise, for this is their function. Not to note a fault or find one would be neglect of duty; and the proof of critical penetration is to discover latent faults that lie too deep for common observation. And so the stock criticism is hypercritical. As there is an established code of methods, so there soon comes to be an established code of criticisms, and these speedily degenerate into cant. I have witnessed more than one of these sad spectacles, but I have no recollection of having heard a word of approval for anything done by one of these unfortunate students during his trial lesson. Under the conditions it is hardly supposable that any really good teaching could be done; but I have occasionally seen bright young people give a lesson which had some decided merits, which the official critics passed over in silence.

Teaching of high quality, that into which a gifted man or woman throws his whole personality, will escape all set rules and stereotyped methods, and, while obedient to the requirements of a general principle, will admit of countless variations and adapt itself to the special lesson, class, and occasion. One of the teacher's highest endowments is versatility, and to create this power ought to be one aim of professional instruction. Now it must be apparent that the general and almost inevitable result of the processes I have described is to mechanize instruction and to substitute "devices" and "methods" for living power. I think it must be admitted by all impartial observers that normal-school training has not been favorable to the development of personal talent and power in teaching; and I believe this fault is traceable to the system of practice teaching which is in such vogue in our professional schools.

An invaluable adjunct to a normal school is a primary school, in which students in training may observe the finest results of the teaching art, in the way of organization, discipline, and instruction. It is needless to say that a practice or experimental school can never be a school of this type; for so many crude hands and heads can never produce a piece of high art. A school of observation should not be a pedagogical clinic for the exhibition and cure of abnormal processes, but a model of what is best in the art of teaching, and one which can safely be reproduced by the students who observe its organization and working. If students have been properly instructed in the general principles of education and teaching, and have made a study of their application in a school of normal type, they are, in my judgment, serving the only apprenticeship that is necessary, and the only one that is not subject to grave dangers. Teaching is an almost wholly spiritual act or art; and the best preparation for it is a clearly defined idea of what a good school is, a knowledge of general principles, and the untarnished enthusiasm of an amateur.

WILLIAM H. PAYNE.

PEABODY NORMAL COLLEGE,
NASHVILLE, TENN.

RECENT CHANGE IN THE REGENTS' EXAMINATION IN THE STATE OF NEW YORK.

In 1865 the first Regents' examination was held on questions issued by the Regents to the schools under their visitation. The object of these examinations was to ascertain what students in the academies could properly be included in the annual distribution of the Literature Fund. The branches included in the first examination were arithmetic, geography, and grammar. Spelling was added in the examination of November, 1866. At first the questions furnished by the Regents were either dictated to classes of students or written on blackboards before them. It soon became evident that the best results in a written examination could be reached only by furnishing each candidate with a printed set of the questions. This has been done since November, 1866, and since

1870 all answer papers considered by the principal entitled to pass with an average of 75 per cent. have been reviewed at the Regents' office. Since 1882 a pass card has been given to each pupil upon his passing in one or more branches; and beginning with November, 1866, a preliminary certificate has been issued when the pupil has passed in the four branches mentioned.

In a brief time the design with which the examinations were organized was largely lost sight of, and they became standards of scholarship in the academies of the State. This fact led to an urgent demand from the schools for examinations in the advanced subjects taught in the academies, and in 1878 such examinations were organized. In 1880 a syllabus was first issued giving an outline of 36 subjects, 35 of which were suited to the test of a written examination and taught in the secondary schools of the State. A certificate of progress was given when the candidate had passed in algebra, United States history, physical geography, physiology, and rhetoric, or in algebra, United States history, and four books of Cæsar's Commentaries. A diploma was issued upon the completion of the academic or of the classical course. In 1882 a new edition of the syllabus was issued, including two additional subjects; and in 1888 a second revision was made and four more subjects were added, making forty-two in all.

In the new syllabus of 1891 the 58 subjects in the examinations have been arranged in five groups according to their cognate relations, as follows: I. Language and Literature; II. Mathematics; III. Science; IV. History and Social Science; V. Other Studies. A unit of work, representing one hour a day, five days a week for 10 weeks, has been assumed, and each subject has been assigned units or "counts" on this basis. In most cases two counts, or 20 weeks' work, are given each subject, but the first year in Greek, Latin, German, French, the second and third years in German and in French, and arithmetic and algebra are each allowed 4 counts; Vergil's Æneid and plane geometry, each 3 counts; and Greek prose composition, Sallust's Catiline, Ovid's Metamorphoses, Vergil's Eclogues, Latin prose composition, solid geometry, plane trigonometry, Greek history, Roman history and ethics, each one count.

Academic certificates are now issued for 30, 40, 50, 60, etc., counts; a medical student's certificate for 16 counts in certain required subjects, or for any 20 counts; and a law student's certificate for 19 counts in certain required subjects, or for any 30 counts. Each of the three diplomas requires 50 counts, the academic diploma providing that six counts be taken from each of the first three groups and six from groups IV and V combined. The classical (college entrance) diploma omits Sallust's Catiline and Vergil's Eclogues and adds to the old requirement an examination in English composition, first year Latin, first year Greek, physiology and hygiene, Greek history and Roman history. The English diploma is new and the course leading to it has been formed for the encouragement of better English scholarship. An advanced diploma is issued to the holder of one of the 50-count diplomas when he attains 10, 20, 30, etc., additional counts. An 80-count classical-scientific diploma is given upon the completion of the required course and is accepted for entrance to the professional class in the New York State Normal College.

The principal changes in subjects and methods have been made in English, in French and German, in Greek and Latin, in physics and chemistry, and in drawing.

The results reached in English grammar seemed to indicate that pupils who had passed the examination in that branch had not attained the facility in the use of the language, both in speaking and in writing it, that was desirable and that could justly be demanded as a result of the best instruction. The cause was thought to exist in the lack of the proper arrangement of the subject as prescribed for the examinations and in the need of more drill in the use of the language. Elementary English and advanced English have therefore been substituted for English grammar, and English composition and rhetoric for rhetoric. The elementary English and English composition as here outlined are intended to imply thorough drill both in the oral and in the written expression of thought; the advanced English and the rhetoric are designed to embrace a knowledge of technical grammar and the science of rhetoric, while requiring also the study of models of the best English and constant exercise in the attainment of a good English style. The study of the common prefixes and suffixes, and of about 100 stems in the elementary English and of about 100 in the advanced English, is introduced with a view to giving pupils a beginning in the logical study of the language, which will serve as a valuable acquisition to those who can pursue the subject no farther, and as a proper basis for higher attainments in language to those who may have more extended opportunity. To insure constant exercise in the practical use of the language throughout these English studies, an essay is required in every examination in each of these subjects upon a topic taken from some work previously announced. The works announced for this year are, in elementary English, Robinson Crusoe; in English composition, Life of Washington; in advanced English, Enoch Arden; and in rhetoric, Webster's Reply to Hayne. An examination in American literature, separate from that in English literature, has been added, and will require besides the usual study of American authors and their works, that candidates commit to memory and reproduce in the examination upon that subject the choicest of our American anthems, popular songs, and patriotic selections. An examination upon an assigned course in English reading, including both English and American authors, completes the English language work. The changes in this department of the work have been made with a view to producing speakers and writers of good English, to developing taste for the best literature in the language, and to storing the memory of the pupils with selections which shall make our schools seminaries of patriotism.

In German and French the course of study has been made three years instead of one, the requirement for the first year remaining as before, but being supplemented by two years of work in more advanced grammar and in translation. No single author is assigned for reading, but several works of different authors are mentioned as indicating the grade of difficulty to be expected in the selections to be made for the examination in the second and in the third year of each of these languages. Selections to be memorized are announced beforehand and will be required in every examination.

The aim of the course is to familiarize the student with the spirit of the two languages by reading at sight, repetition from memory, conversation, exercises in reproduction, and composition.

In Greek and Latin an examination in first year work has been introduced as an encouragement to those beginning these languages, by giving due credit for work done before Cæsar's Commentaries have been read, and to give a more thorough test upon grammatical principles. In first-year Greek a list of

30 irregular verbs in most common use is given with their parts, familiarity with which is required in this examination. To the mathematical group advanced arithmetic has been added, embracing demonstration of principles as well as explanation of processes. It implies a review and completion of the subject after the student has pursued geometry and algebra, and is intended to meet the requirements in arithmetic for admission to professional work in the normal school.

In physics and chemistry, where before the whole subject was covered by the elementary and also by the advanced examination in each subject, the elementary examination in each will now include the first part of the subject, and the advanced examination the second part as outlined in the syllabus. This change, it is thought, is in the interest not only of more thorough but also of more extended scholarship in these subjects.

To the historical group general history has been added. The former examination in drawing, somewhat modified, has been made the advanced, and an elementary examination in form-study and drawing will serve as an introduction to the advanced.

All changes have been made after much consultation and careful consideration. They are intended to be for the encouragement of philosophical methods and sound scholarship, and in accordance with approved pedagogical principles. The system of examinations is the result of growth through the candid criticism and co-operation of the teachers of the Empire State, and this it is hoped will still be given as fully and as cheerfully in the future as in the past.

ALBERT B. WATKINS.

UNIVERSITY OF THE STATE OF NEW YORK,
ALBANY, N. Y.

THE NEW SCHOOL LAW IN ST. PAUL, MINN.

St. Paul has a new school law, which has some exceptionally good features and some exceptionally bad ones. The chief reason for securing a new law from the last legislature was the wide-spread dissatisfaction with the board of education, based mainly upon the ground of extravagance in the expenditure of public funds. The objects aimed at in the law were the removal from office of the old board and the taking from its successor the power to incur indebtness and expend money *ad libitum.*

The old board of education was legislated out of office, and it was provided that the mayor should appoint a new board under different conditions. The new members were not to represent wards or districts, but to be chosen from the city at large and to hold office for three years. The corporate powers of the board were taken away and vested in the city. The power to decide what tax levy should be made for school purposes was taken from the board of education, and, with a maximum and minimum limit, was transferred to the city council. At the same time the city council was given other powers which restricted those of the board of education in regard to the expenditure of all funds.

These measures, as may be readily seen, were mainly in the interest of the taxpayer. In addition to these, certain other provisions were put into the law through those whose chief interest was in education and the children. The most important of these was the following:

"Teachers appointed by the said inspectors shall serve during the pleasure of the inspectors and shall not be subject to annual election; provided that all teachers so appointed shall have taught successfully in the schools of St. Paul for at least one year." Another was a clause making it the duty of the police of the city to co-operate with the school board in the prevention of truancy.

These are in outline the main features of the new law, and they may be classified very easily as good and bad. The good features are, first, the article providing for the appointment by the mayor of a small board of education, seven in number, who represent the city at large. This removes from the board the pressure of local and political influence, and makes it possible for an intelligent body of men to pass intelligently upon questions relating to the internal workings of the schools. Second, the permanent appointment clause. In importance, the latter should come first. As will observed, this is not very definite, and it is left with the board to devise proper regulations under which the law shall be enforced. The rules already enacted to this end are here given and speak for themselves: "All teachers appointed under the above rules shall be under probation for one semester, at the end of which, unless there is, in the opinion of the principal of the school and the superintendent of schools, a reasonable prospect of success, they shall be dismissed. If, however, there is such a reasonable prospect, they may be continued in the schools for the remainder of the year, at the end of which they may either receive a preliminary certificate of success or be dropped from the roll. Teachers having received a preliminary certificate may be continued for another year, at the end of which they may become candidates for permanent appointment in the St. Paul public schools. Such candidates shall be required to pass an examination satisfactory to the superintendent of schools and the board of school inspectors upon the history and theory of pedagogy, and to present unqualified certificates of recommendation from the principal of the school in which they last taught and from the superintendent of schools. Teachers meeting these requirements shall receive the St. Paul teachers' certificates, entitling them to places among the permanent employees of the board. And those presenting certificates of success in teaching and failing in the examination required may, at the option of the board, be retained for another year of probation or at once dropped. Provided, that nothing in the above rules shall be construed to limit the power of the board to dismiss at any time any teacher or other employee because of moral delinquencies or of failure to properly perform the duties of their respective positions.

"The portions of this rule relating to permanent appointment shall apply to all teachers, principals, and supervisors at present in the employ of the board who have held their positions for less than two years. All others may, upon passing the required special examination and receiving the proper certificates, be at any time placed upon the roll of permanent teachers."

These rules make it possible for the St. Paul board of education to materially raise the standard of the teaching force, and to secure to the teachers that freedom from harassing fear of removal which comes periodically at the time of the annual elections. If this means that any poor teachers now in the corps are to be placed upon the permanent force, of course it will work disaster, but if the board exercises proper care in making appointments, it will work inestimable good.

Another good provision is the one requiring the police department of the city to co-operate with the school authorities in the prevention of truancy. This, however, while new in St. Paul, has obtained for some time in other cities and does not need discussion. The details are left with the board to work out, and the experience of other cities will be consulted.

The principal bad feature of the law is the thrusting the financial responsibility upon the city council and bestowing upon it the power of curtailing the expenses of the schools beyond a reasonable limit, thus incidentally bringing the schools back into politics. The average city council in all cities is political in composition and appointed without special regard to interest in the cause of public education and acquaintance with it. A small board, such as St. Paul now has, can be appointed with special reference to these points. The danger is that the city council, for political reasons, will too greatly limit the powers of the board of education to spend money and will use such pressure as will cause the cutting off of some department or departments which they fail to comprehend or think unnecessary.

CHARLES B. GILBERT.

SUPERINTENDENT OF SCHOOLS,
ST. PAUL, MINN.

VI.

EDITORIAL.

From the very full reports of the International Congress of Hygiene and Demography, held in London during the past summer, it is evident that great emphasis was laid upon the relations of both public and private hygiene to education and school life. The work of one section, that of infancy, childhood, and school-life, was entirely devoted to subjects of educational interest; and incidentally other sections drifted into discussions that have a direct educational application. The conviction has been growing of late that the physiological and hygienic side of education is the most important side, and the literature on the subject is increasing very rapidly. No teacher can be regarded as fully equipped for his profession who is in ignorance of all that modern science has to say upon this subject.

Dr. Francis Warner, whose publications in the study of children are familiar to readers of the EDUCATIONAL REVIEW, read a paper on "The Scientific Observation of Children in Schools." His conclusions were based upon an inspection of over 50,000 children, and were so well confirmed by the testimony of other speakers, that it was voted to recommend special arrangements for the training and education of the very appreciable number of children, who, though not imbecile, are found to be more or less defectively developed in brain and body. Another resolution of general interest is one that was passed after listening to two papers on the injurious physical effects that follow the habitual use of a "sloped" handwriting. It was as follows: "That, as the hygienic advantages of vertical writing have been clearly demonstrated and established, both by medical investigation and practical experiments, and that as by its adoption the injurious postures so productive of spinal curvature and short sight are entirely avoided, it is hereby recommended that upright penmanship be introduced and generally taught in our elementary and secondary schools."

Perhaps as valuable an educational paper as was read at the Congress was that by Professor Leo Burgerstein, of Vienna, on "An Experiment concerning Overpressure." He had prepared a diagram showing the curve of a working hour, as indicated by the varying brain-power of the children observed. The conclusions drawn by the author were twofold: First, that it is desirable that the question of mental overpressure should be studied by exact experimental methods, and that school authorities should instigate experiments in that direction; secondly, that until the question of overpressure has been thoroughly investigated by scientific methods, no school lesson should last longer than three-quarters of an hour, followed by a quarter of an hour's rest.

The other educational subjects discussed were school hygiene in Belgium, laws regulating child-growth, the physical education of children, manual training in its relation to health, free dinners for school-children, the education of the blind, the physical and manual education of deaf mutes, and acuteness of vision in school-children.

The French Academy of Moral and Political Sciences has had the subject of pedagogy before it for serious consideration. At a recent meeting M. Octave Gréard, the accomplished vice-rector of the Academy of Paris, presented a paper on "The Science of Pedagogy," which provoked a sharp discussion. M. Gréard insisted that pedagogy, while an art, is also a science, and that it has both an historical and a philosophical basis. Like all the moral sciences, it leads to action and influences conduct; but, by so doing, its character as a science is not lost. M. Courcelle-Seneuil, on the other hand, contended that all the so-called moral sciences, pedagogy among them, are in reality arts only.

The discussion has called out a vigorous expression of opinion in the French press, and M. Ravaisson may fairly be said to represent the majority of educationists, not only in his own country but elsewhere, when he points out that the science and the art of education may be distinguished but not separated.

For four or five years past, the State of New Jersey has been making educational history in a very satisfactory way. Many of the gaps in its educational organization have been closed, and the whole attitude of the State government toward the school system has been sympathetic and progressive. The laws aiding the establishment of manual training, technical schools, and school libraries are admirably drawn, and their beneficial effects are felt all over the State. The State Normal School, at Trenton, has been reorganized from top to bottom, and now that it has taken possession of the new building erected for it, no school of the kind in the country is better prepared to do useful work in training teachers for the State schools. Physical training, manual training, and the experimental study of natural science are all amply provided for, and the State must feel the effect of the emphatic indorsement that the new education has received from this central institution.

Of even greater importance is the new code of revised rules and regulations of the State Board of Education. These rules are the result of long experience and careful study, and the influence upon them of recent recommendations by the State Council of Education and the State Teachers' Association is very marked. It is doubtful whether any organizations of teachers have been more uniformly successful in securing immediate and favorable consideration for their proposals, than these New Jersey associations.

Among the entirely new rules is one exempting graduates of colleges in good standing from an examination in the academic studies, prescribed for the several grades of license, the college diploma being accepted in lieu thereof, as satisfactory evidence of scholarship. This relaxation of the old practice which put the graduates of the college and of the district school on the same footing, is not only rational and commendable for its fairness, but it finds an additional justification in the premium it puts upon a liberal education. It will attract college-bred men to the teaching service of the State. So long as the college training failed to receive any official recognition of its value it is not to be wondered at that, in the eyes of many, broad scholarship and a liberal culture were of no special value to the public-school teacher.

Hence this act of the New Jersey State Board in putting a deserved premium upon a college education is to be hailed with satisfaction everywhere, and will doubtless be imitated in other States where the contrary rule now prevails.

Another important change is the establishment of a regulation by which teachers' licenses issued in other States, under proper conditions, will be fully recognized in New Jersey. No little annoyance, not to say positive hardship, has often resulted from the fact that a certificate or diploma given in one State could not be officially recognized in another, thereby subjecting teachers, however capable and experienced, to a re-examination with all its inconveniences and anxiety. In New Jersey this rule will hereafter prevail: "The State Board of Examiners may indorse the diploma of any Normal School or Training College or the permanent certificate issued by a State Superintendent, or Board of Examiners, of another State, when the course of study of such Normal School or Training College, or the requirements for such certificate, are, in the judgment of the State Board of Examiners equivalent to those required for similar diplomas or certificates in this State; and when so indorsed, such diploma or certificate shall have full force and effect as if issued in this State." Of so liberal and sensible a rule as this, there can be but one opinion.

This and other changes that will undoubtedly attract general attention as they become familiar, are all in the direction of a more real and rational system of State control and supervision.

In a recent number of the *Saturday Review*, the London School Board is criticised in the most caustic manner for its "indiscriminating zeal in administering the compulsory attendance clause of the Education Act." It seems that in North London, within a single week, some sixty parents had been brought into court to answer for the non-attendance of their children at school. Among this number was one poor woman who brought with her medical certificates to prove that her child was suffering from an injured eye and broken arm.

The case of this unfortunate woman is made the text for arraigning the action of the Board in the whole matter as "a grossly unwarrantable prosecution," and "gratuitous indignity to the poor." Undoubtedly the officer of the Board charged with the enforcement of the law might have exercised better discretion, provided the law gave him any discretion, than to put the parent, in this case, to the trouble and cost of appearing in court and proving the disability of the child. Still the principle of the greatest good to the greatest number ought to condone for an occasional case of hardship, which the experience of mankind has thus far found to be inseparable from the enforcement of every good law. The maxim that it is better for the ninety-and-nine to go unpunished rather than that one innocent man should suffer, cannot safely be applied even in education.

The admitted failure of compulsory education in most American cities is owing to our inability under the law to cite parents into court to answer for malfeasance in not sending their children to school. A little of the London rigor introduced into our methods of dealing with non-attendance would be altogether wholesome, and pave the way to many reforms that are now impossible.

At the opening of the new library at Cornell University, President Gilman of Johns Hopkins was the orator of the day. In a singularly felicitous address, abounding in happy illustrations, he described the function of the modern library as an educational force. The entire address is worthy of careful perusal, but the following passage is specially suggestive and for that reason is reproduced here without apology:

"In these days when the cry for university extension is popular, it may be well to consider whether the influence of libraries cannot be extended by arrangements which will increase their efficiency. Suppose it to be understood that at certain times an intelligent and well-read person, in the service of the library, is free from all other duties and is ready to give counsel about books to all who question him. Let it be a part of his business to study the wants of those who frequent that library. Let him have at his elbow the best catalogues, indexes, and criticisms. Let him be trained to such habits that he can readily find what he wants in a library, even when for the first time his attention is called to a subject. Let him be of a kindly disposition, patient with the uninformed, ready to catch the meaning of inquirers who have only imperfect modes of indicating their own wants; let his sympathies be broad, his intellect versatile, his knowledge comprehensive. Such a man could do as much for the cultivation of the community as the editor of a newspaper, as the head of a school, as the pastor of a church—perhaps I might say as much as all three. Such persons are often found in public institutions. They ought to be recognized as necessary members of a library staff, the ushers of good books. They are the mediators between the writers and the readers. In these remarks I had chiefly in mind the popular library. In learned libraries, like those of colleges and universities, and in those so richly endowed that they are attractive to learned men, the principal librarian or superintendent should be a man of wide knowledge. If it is not necessary for him to know as many languages as Mezzofanti, he should at least command Greek and Latin, French and German. He should love science as well as literature. He should survey with an eagle's eye the vast fields of human activity, and discern with prophetic instinct what books will soon be wanted. He should watch for opportunities, as do merchants, to purchase that which rarely comes into the market. He should be skillful in arranging the treasures that he guards, so that they will be most helpful and suggestive to the investigator. The Librarian's office should rank with that of a Professor. He will be the better administrator if he cultivates his own special branch of study, for thus he will have a sympathetic relation with other investigators, and he will be the better investigator if he is also a teacher. Erudition should be the characteristic of his mind, beneficence of his heart. I wish it were the established custom to seek out such men and place them in charge of our libraries."

The meeting of the Council of School Superintendents of the State of New York, on October 14, 15, and 16, was one of unusual interest and importance. The Council is composed, with the State Superintendent, of the city and village Superintendents of the State. It is a body of representative educators whose conclusions, when properly formulated, ought to have great weight in molding public opinion and guiding legislation on school subjects. The chief subjects considered at the recent meeting were the exhibit of the New York schools at the Columbian Exposition, compulsory education, the professional training of teachers, a State educational commission, kindergarten schools, and high schools. There was practical unanimity of opinion in the conclusions arrived at on all these subjects. With regard to the Columbian Exposition, it was decided that the exhibit should be divided into two parts, State and Municipal. The State Exhibit should include not only documents showing the work of the Department of Public Instruction, but also exhibits from the State Normal Schools, training classes for teachers, Indian schools, and the State institutions for the education of the blind and of deaf-mutes. The Municipal Exhibit should show all departments of city and village school systems. School work should be exhibited under the following conditions: each specimen should be labeled with the name and age of the pupil, and the date at which the work was accomplished; no work done prior to September, 1892, should be exhibited; work shown should be the work of an entire class; home work and special work done in school by individual pupils should be excluded; part of the work from every locality exhibiting should consist of the answers to questions written by pupils at graduation examination. It was urged "that requisite means be taken to prevent the unity and educational force of the display from being marred or lessened by association with private business exhibits of school furniture, books, or apparatus." The State Superintendent was requested to distribute the space assigned to New York among the various localities desiring to exhibit.

The council ordered that a bill be drafted, containing, among others, the following provisions with regard to compulsory education, and submitted to the next Legislature: children between the ages of seven and twelve must attend, for at least 150 days in each year, either a public or a private school in which the ordinary public school branches are taught in the English language, or they must receive equivalent instruction at home during the same period; children between the ages of twelve and fourteen must attend school at least 100 days each year, and if not employed at some suitable occupation, must attend 150 days; children between the ages of fourteen and sixteen must be under instruction, if they are not employed; it shall be a misdemeanor, punishable by fine or imprisonment, or both, for parents to fail to educate their children or for employers to employ children contrary to the provisions of the law; no child under fourteen years of age shall be employed who has not reached a certain grade in a public school, or who cannot pass a prescribed examination, to be determined by the local public school authorities; the public school authorities of cities and villages must provide the machinery for the execution of the law, and may establish and maintain schools or homes for incorrigible truants, and make suitable regulations for the reception and care of incorrigibles sent from outside districts; and the State Superintendent shall be authorized to withhold from any city, or village, or school district that does not enforce the provisions of the law, its share in the State school moneys. Should a bill containing these provisions become a law, New York would have a compulsory education act very different from the verbose and ambiguous measure that now cumbers its statute book, and that is more honored in the breach than in the observance except in New York city, Brooklyn, and a few other places.

A State Educational Commission, to inquire into the working of every department of the school system, is something that has been repeatedly urged by Superintendent Draper in his reports to the Legislature. Last year the council took up the matter and appointed a committee to confer with other educational bodies in the State. The committee announced that the idea had been everywhere received with favor. The report that was finally adopted recommends the enactment by the Legislature of a law providing for the appointment of a salaried commission to inquire into the working of all parts of our public educational system; to suggest reforms, and to prepare the legislation necessary to carry their suggestions into effect. The commissioners, it was recommended, should be few in number, men of the highest type of character and standing in the community, and wholly unconnected with the machinery of public education. The opinion was almost unanimous that the conclusions of such men, arrived at after a thorough sifting of the evidence presented by educational experts, would have greater weight with the community at large and with the Legislature than would conclusions reached by a commission of educators, who would assuredly be regarded as prejudiced, each in favor of his own scheme or system. The Superintendents have taken a wise view of this subject. If there is to be an educational commission in New York State, to let in the light on all the dark places of the school system, it must be composed of men whose names will be a guarantee of ability, integrity, and impartiality, and under no circumstances must it be allowed to degenerate into a machine, to whitewash the reputation either of a system or of an institution.

The opening session of the sixth annual meeting of the New England Association of Colleges and Preparatory Schools, at Cambridge, was devoted to what President Eliot called "the most important educational problem in America," namely, the shortening or enriching of the grammar-school curriculum, and the consequent shortening of the time required to fit for college. As presented by Mr. Frank A. Hill, of Cambridge, the subject involved the following propositions: the nine years of elementary instruction in the grammar schools ought not to be abridged; the secondary schools ought not to dip down into the lower grades like those abroad; the colleges of the country should connect with the high-school system all along the upper line, and so reduce the age of admission for many of the belated; the high-school course of four years will not bear reducing; pupils who begin at six and move along normally reach college early enough; an enrichment of the grammar-school curriculum is desirable; the chief aim in preparatory work should be to improve quality within existing time-limits rather than to attain the present level of quality in reduced time-limits.

In opening the discussion on this subject, President Eliot called attention to the fact that most of the boys were taken out of the grammar schools before completing the grammar-school course of study, and were fitted for college elsewhere, because the shortest route to college lies through the private schools. Only one-third of the men who enter Harvard are prepared in the public schools. There was a general concurrence of opinion that too much time is now given to arithmetic and geography (English grammar was not mentioned, but it might have been) in the grammar-school course, and that with proper omissions from these subjects, room would be found for elementary algebra and geometry, a foreign language, and elementary science. The long-continued monopoly enjoyed by arithmetic as the mathematical study of the grammar school was justly attacked. The three subjects, arithmetic, algebra, and geometry, may be pursued simultaneously. It was well argued also that the best time to learn a language is during childhood, and that elementary science may profitably be pursued from the outset of the child's career in school.

The improvements suggested were two, with some difference of opinion concerning which of the two was the better, or rather which was the more practicable. As a matter of fact the two plans are not mutually exclusive. They are: (1) the "dipping down" of the secondary school, and beginning the preparatory course earlier in the pupil's career, as is now done with good results in the Boston Latin School and in the schools of Germany and France; (2) the enriching of the grammar-school course of study so that, whether the pupil goes to college or not, he advances regularly in his preparation for college. Superintendent Seaver, of Boston, expressed a preference for the "dipping-down" method because of the great practical difficulties in the way of the proposal to enrich the grammar-school course, and because of the relatively small number of pupils who would be benefited by the change. On the other hand, representatives of the private academies declared the "dipping-down" process impracticable for them, and it was further asserted that it could not be successfully accomplished in cities having a population of less than 50,000.

In reply to Superintendent Seaver, President Eliot admitted the "dipping-down" process to be at present the more practicable but not the more advantageous, since that plan is best which improves the whole grammar school instruction. He argued further, that the question really turns upon the wisdom or the unwisdom of a uniform course of study for all. Such a course of study is philosophically unsound. Formerly the colleges were so administered. The schools must abandon forced uniformity as the colleges have abandoned it.

All this is good so far as it goes. The next step must be a detailed statement of the omissions and changes suggested for the grammar school course of study. A tabular view—on the plan of the one used by Mr. Hill, showing the relation of the several grades of instruction in Germany, France, and the United States—to show what omissions are desirable, and just what should be substituted for them, would materially aid a practical solution of the question; or it might at least lead to the definite experimentation which Mr. Tetlow suggested to President Eliot should be tried in a Cambridge grammar school.

Time was also given to a discussion of "Natural Science as a Requisite for Admission to College." Professor Clarke, of Williams College, opened the discussion with a paper urging the claims of natural science. It was interesting to note the readiness of the secondary schools to furnish preparation in science when the colleges ask for it. Out of one hundred schools sending students to Williams College, ninety replied "yes" to an inquiry asking if they could respond to scientific requirements in 1893; and among the Greek teachers in the secondary schools were many who spontaneously recommended preparation in science as an alternative with Greek. In the discussion that followed, the practical difficulties of the plan evidently influenced the attitude of many who took part. Dr. Gallagher, of Williston Seminary, presented quite a long list of practical difficulties, while acknowledging that his own school was fortunately so situated as not to be hampered by them. The discussion throughout showed a real desire to recognize requirements that mean actual work in science as distinguished from text-book science. The most interesting question was, however, as to what particular science should be required. It was denied, and also affirmed, that one science would answer as well as another. The truth seems to be that there are as yet not enough data upon which to base a final opinion as to preparatory work in science. One science, physics, was admitted to be excellent because it could be made to yield numerical results. In closing the discussion President Eliot pointed out that physics is the best science available, and that chemistry is also good. Of the other sciences, zoölogy and botany cannot be advantageously pursued at all seasons, and much of physiology is both unproved, and in the present state of the science, unprovable.

VII.

REVIEWS.

Life and Works of Horace Mann.—Boston: Lee & Shepard, 1891, 5 vols., pp. 587, 571, 466, 403, 573.

A generation has arisen that knows not Horace Mann. His name and, to a certain extent, his fame survive; but the precise grounds on which his reputation rests, and the definite ends that he sought to accomplish, are neither clearly nor generally understood. The common school never had a more enthusiastic and unselfish apostle than Horace Mann, and it is quite fitting that in the present era of educational activity attention should be called anew to his life and writings. In this handsome edition the publishers have made both accessible, and no educational library, public or private, can afford to be without it. That the editor should have abridged many of the reports and papers is unfortunate, but it is probable that only the few special students of the history of American education will be inconvenienced.

Mann was led to espouse the cause of the common school both by his philanthropic temperament and his personal experience. The vivid description of his own school-days reads almost like a passage from some oration of the present decade. "With all our senses glowing and receptive, how little were we taught," he exclaims in a letter to a friend, "or rather, how much obstruction was thrust in between us and Nature's teachings! Our eyes were never trained to distinguish forms and colors. Our ears were strangers to music. So far from being taught the art of drawing, which is a beautiful language by itself, I well remember that when the impulse to express in pictures what I could not express in words was so strong, that, as Cowper says, 'it tingled down to my fingers,' then my knuckles were rapped with the heavy rule of the teacher, or cut with his rod, so that an artificial tingling soon drove away the natural. Such youthful buoyancy as even severity could not repress was our only dancing-master. Of all our faculties, the memory for words was the only one specially appealed to." From his boyhood he longed for more education, not only for himself but for his fellow-men. His ruling passion was benevolence and its instrument knowledge. Through knowledge, education, all social reformation was to be accomplished. Poverty must be no barrier to educational opportunity. The state, through its system of common schools, must open to all the avenues to knowledge.

With these principles as his creed, Horace Mann labored long and earnestly for his fellow-men. As private citizen, as Secretary of the Massachusetts State Board of Education; as the successor of John Quincy Adams in Congress, and as President of Antioch College, he kept his lofty aim steadily in mind, and never ceased to strive for its accomplishment. Moreover, he understood what so many of his contemporaries and successors overlook, that in a democracy any real and lasting reform must rest upon an intelligent and instructed public opinion. Horace Mann, therefore, appealed to the parent as well as the teacher, to the citizen as well as to the legislator.

He had the faults of his generous, impetuous nature. His diffuseness is often very trying, and he lent a too ready ear to certain counsels and opinions that were pressed upon him. But citizen and teacher alike cannot rise from the reading of any one of these five volumes without feeling that popular education is a chief bulwark of civilization and of social order, and that to labor in its behalf is one of the noblest of life-works.

N. M. B.

The Present and Future of Harvard College: an Address delivered before the Phi Beta Kappa Society at Cambridge, Mass., June 25, 1891.—By WILLIAM WATSON GOODWIN, Eliot Professor of Greek Literature in Harvard University. Boston; Ginn & Co., 1891, pp. 42.

The Harvard Commencement season has been dignified by many Phi Beta Kappa orations that have become permanent contributions to American literature. Professor Goodwin, in choosing a homely theme and in appealing to a smaller audience than many of his illustrious predecessors, has not failed to sustain the traditions of his office. His address, which has happily been published for general circulation, is a broad and scholarly treatment of some of the most important movements in American higher education. It professes to discuss Harvard College only, but in reality it passes in review the development of the American university and the function of the college when both secondary school and university shall have reached a fuller and richer development. On both of these topics, Professor Goodwin speaks with wisdom and force, and his criticism is as instructive as his exposition is lucid. Read in connection with President Eliot's annual reports and Professor Palmer's papers on "The New Education," which appeared four years ago, Professor Goodwin's oration makes very clear indeed just what changes have taken place at Harvard and the steps by which they have been reached.

The especial significance of Professor Goodwin's argument lies in the fact that he, a ripe classical scholar and life-long teacher of Greek, pronounces in favor of those changes which have removed the study of Greek from the list of requirements for the baccalaureate degree. In so doing he separates himself from those short-sighted partisans whose exaggerated claims for Greek as a pedagogical panacea for the million have long since rendered their position untenable. Yet he does not abate in the least his enthusiasm for classical study, or his belief in it as a source of the highest culture. The effects of the elective system are traced and its results enumerated. It has dethroned the well-meaning dunce from his powerful position, and has greatly promoted real scholarship in every department. It has broken up the stupefying rigidity of the class system, which still holds so many colleges in bondage. It has won men for higher courses of instruction and research. Yet the elective system is not an unmitigated blessing. "I regret as much as anybody," says Professor Goodwin, "the gaps which the elective system often leaves, or allows careless students to leave, in their education. I do not like to see young men go out from college stamped with the highest marks of honor, who have never read a line of the Iliad, who do not know what a syllogism is, or the difference between a planet and a fixed star. But when I look at these defects of our system, and then turn to the wonderful advance in scholarship which we owe to this same system, and especially when I think how hopeless even our present scholarship seemed to us all twenty-five years ago, I cannot feel that we have made a mistake in securing this permanent gain, and in establishing our Graduate School as a custodian of our higher scholarship, even if we have temporarily sacrificed some of the lesser interests of learning." These sentences will be welcome to many a patient college teacher, who is laboring to free himself and his college from the traditional bonds that hold them. They are as applicable to one institution as to another, for the American university with its great central faculty of philosophy, or arts and sciences, as it is sometimes called, will guard the higher and non-technical learning. The way is now open to the college to become, even more largely than it is at present, the great popular school of training and of culture, and the careful reading of Professor Goodwin's oration by those in authority, will hasten this development. It will dispel doubts, correct prejudices, and lead to a clearer and wiser view of some of the problems now before the American University.

N. M. B.

Apperception; or, the Essential Mental Operation in the Act of Learning. An Essay on " A Pot of Green Feathers."—By T. G. Rooper, Esq., M. A., H. M. I. Syracuse, N. Y.: C. W. Bardeen, 1891, pp. 52.

It is not difficult to imagine anyone, whatever his stage of advancement, rising from the second or third reading of this thoroughly engaging little book with the conviction that the more of such pedagogy we can have the better, and with the hope that our pedagogic literature may no longer be so barren of such helpful monographs. For it is certainly as true that this little volume does stand almost alone in its plan, its style, and the peculiar place that it is fitted to fill, as that these things ought not so to be. Without any of the objections that may be urged against Radestock's " Habit in Education," and treating a theme that is no less fundamental and even more important, it may be that this book is destined to fill a far larger place with the teachers of the country than the former work has yet found. Different as these two little books are in almost every respect, there is yet a sort of nut-shell quality peculiar to them both that warrants their being mentioned in the same connection, and perhaps made use of for the same purpose.

There is no attempt at exhaustive treatment, and in this fact, together with the delightfully concrete style, and the keen instinct that the author has for the heart of the subject, lies the strength of the book. Who wants such a book to be complete? Not the beginner, for it blurs his insight into essentials; and certainly not the advanced student, for he can develop for himself. Incomplete as it is, we have here the gist of a theme which is at the very heart of pedagogy, written in clear language, and adapted to the comprehension of any-one. There is not a definition in the book: and yet it is peculiarly rich in the variety and frequency of its use of terms. These terms are used generally in a sense broader than discriminating usage admits. Impression, for instance, is made a sort of psychological factotum. And yet nothing more pedagogical than all this could be imagined, and no better instance of the application of the very principles that the author would inculcate could well be found than his own skillful exposition. It is safe to say that this essay is *par excellence* a book for beginners in pedagogical psychology, and that a more sure, pleasant, and practicable way, especially for those who are pursuing the subject without a teacher, could not well be devised. He would certainly be plunged *in medias res* without having to run the gauntlet of definitions that, very properly, to be sure, blocks the entrance of a formal and systematic treatise. The trees are there, but it is the woods and not the museum.

Perhaps the only points in the book that are susceptible of misinterpretation are the unqualified statement of the dictum "things before words"; and the affirmation that "every time a child learns to say that the tiger is an animal, he not only learns something about the tiger, but also extends his conception of what an animal is." This may do in logic, where we deal with the *ought*, but not in psychology, where we must deal with the *is*, of mind. Juxtaposition does not always involve judgment. The ability to say a thing one way does not involve the power to say or to know it the other way. One cherishes vivid recollections of a case where "six eights are forty-eight" added to the concept of the sixes, but not to the concept of the eights or the concept of the forty-eights.

There is space only to say further that one who completes the reading of the *Pot of Green Feathers* is likely to do so with the feeling that somehow he owes a debt not only to Mr. Rooper who wrote it, but also to Robert Hebert Quick for discovering it; to Dr. Harris for telling us about it, and to Mr. Bardeen for publishing it; a debt which he can best discharge by urging all his friends to read, mark, and—apperceive it.

WALTER L. HERVEY.

NEW YORK COLLEGE FOR THE TRAINING OF TEACHERS.

Studies in Constitutional Law: France—England—United States.— By ÉMILE BOUTMY. Translated from the French by E. M. DICEY, with an Introduction by A. V. DICEY, D. C. L. New York: Macmillan & Co., 1891, pp. xiv, 183.

This stimulating and suggestive book, with its lively style, its strong individuality of method and of view, its surprising accuracy of information and certainty of insight, has been known and prized by specialists ever since its first publication in 1885: this translation of it makes it accessible to English readers, and ought to be the means of giving it the wide popularity it deserves. The first of the three essays it contains sketches briefly and rapidly, but with a very sure touch, with sufficient historical explanation, and with many acute comments, the various and diverse sources of English constitutional law and practice; the second analyzes, at considerably greater length, our own constitutional structure, its state and its federal, its documentary and its customary parts; the third rounds out the other two in a most interesting and suggestive way by discussing the spirit and historical genesis of English and American institutions in comparison with the spirit and history of French political developments.

There is a singular *naïveté* in the self-confidence with which M. Boutmy smiles, now at the ignorance, and again at the mental characteristics of his own countrymen, and acts as schoolmaster to other French students of constitutional law in the study of English and American political arrangements. But there is no touch of arrogance in the urbane and placid way in which it is all done, and M. Boutmy furnishes on almost every page abundant justification of the assumption that he knows what he is talking about.

Evidences are not wanting that he is himself a Frenchman, who sometimes finds it just a little difficult to occupy the English or American point of view. It makes one stare to read in a preface written in 1888 that "the question of secession is not yet closed" in the United States, and that there is still a chance that we may have several federal republics upon this continent instead of one. It seems odd to us to find Georgia put along with Massachusetts, Connecticut, and Pennsylvania in a generalization as to density of population and rate of immigration when speaking of a period preceding the war (p. 132); we can hardly agree that our constitutional Declarations of Right were in the nature of commercial advertisements, meant to attract immigrants (pp. 129, 130); we wonder when we read (p. 10) that there was a time, not a hundred years ago, when the practical independence of Ireland might have been quickly accomplished; it is evidently out of keeping with the author's general (perfectly true) view of English constitutional development, that it has been a history of practical expedients and not a history of the carrying out of systematic plans, to say (p. 48) that the English "did not *intend* their Constitution to be a compact whole," and that constitutional items of law, "instead of being marked out and easily distinguished, are *purposely* mixed up with ordinary laws, and allowed to fall out of view." Many individual judgments contained in the volume may well be doubted.

But these are only incidents, perhaps we might say only accidents, in the general progress of an exposition almost uniformly admirable, and at some points,—notably in the third essay,—rising to quite unusual heights of excellence and suggestiveness. Under M. Boutmy's handling familiar institutions assume a new significance, are clothed with a new life. Those who do not read this little volume will have missed a principal source of information and inspiration.

The style of the translator is excellent. It is not exactly M. Boutmy's style; a rather surprising license of free translation is observable throughout. But the spirit of the original is very well preserved, and at almost every point its true significance.

WOODROW WILSON.

PRINCETON UNIVERSITY.

Principles of Political Economy.—By ARTHUR LATHAM PERRY, LL. D., Orrin Sage Professor of History and Political Economy in Williams College. New York: Charles Scribner's Sons, 1891, pp. xii, 599.

Professor Perry's resignation of his academic chair, after thirty-seven years of faithful and distinguished service, lends a melancholy interest to one of the reasons that led him to write this treatise. This was a desire to provide for himself a fresh text-book to teach from. His friends and pupils will feel that he could hardly have closed his pedagogic labors more worthily than with such an example of devotion to the teacher's task.

Two other reasons assigned for undertaking the volume are contradictory, and one of them points to its most serious fault both as a scientific work and as a text-book. Wishing to leave behind him one book devoted exclusively to the principles of economic science, and using history only incidentally for purposes of illustration, Professor Perry has also felt it a debt due to his countrymen to use once more the best and ripest results of his life-long studies "in the most cogent and persuasive way possible, within strictly scientific limits, to help them see and act for themselves in the way of escape from false counsels and impoverishing statutes" in the matter of cheap money and artificial restrictions on trade. Both of these are praiseworthy purposes, and anything from Professor Perry's pen in fulfillment of either would meet with respectful attention. But he has undertaken the impossible task of combining them in one work. The result is a book not devoted exclusively to a calm exposition of principles, but a highly polemical mixture of principles and their practical applications. With all deference to Professor Perry's high authority, and with the greatest admiration for his abilities and achievements, the younger generation of economic teachers believe that if political economy is to be recognized as a science worthy of the intellectual devotion of men who possess the true scientific temper, its principles must be carefully distinguished, in academic instruction, from the controversial discussion of debated questions of legislative policy.

That the controversial habit of mind unfits an author, in some degree, for a purely scientific treatment of his theme, is seen in parts of Professor Perry's book that should be purely expository. It leads him to be too easily satisfied with his own thinking when he might with advantage institute a painstaking comparison with the analyses and conclusions of other scholars. The system of economic theory as it exists in the minds of leading economists to-day is a very different thing from the political economy of the text-books twenty-five years ago. A great deal of keen thought has been devoted to fundamental problems, and presently we shall have a text-book in which the results, sifted and corrected, will be brought together in a new synthesis. Professor Perry has not so much as attempted such work. Comparing his new book with his older ones we see the growth of his own economic thought—the development of an individual system, not the growth of the body of economic doctrine. From the point of view of a personal contribution to the science this may be well enough; but is it the right point of view for a text-book?

It is pleasanter to turn to the merits of this volume, which are many. The gift of clear statement which was so conspicuous in Professor Perry's earliest work, and contributed probably more than any other one thing to secure for it the large sale of twenty-one editions, has not deserted him. His thought is never vague. His analyses and definitions are clean cut, and bear that distinct impress of an original mind which never fails to fix the attention of students. This vigorous style is enriched by concrete facts drawn from the actual world of business. It is safe to say that in no other text-book of political economy will the student find so much historical, geographical, statistical, and legal material, pertaining to industry and commerce, or so many of the technical terms used in trade and banking, with their definitions.

The arrangement is new, and is a much more severely simple grouping of economic categories than appeared in either the *Political Economy*, or the smaller *Introduction*, though it is but the logical outcome of views set forth in both. The first chapter is devoted to Value. Then, in order, come three chapters devoted to three kinds of "valuables," namely, material commodities, personal services, and commercial credits. Money is next treated as the only valuable that may belong to more than one of three categories; it may be either a commodity or a credit. The sixth chapter is on foreign trade, a subject given separate treatment because of the venerable and deep-rooted error that sales against money differ from sales against other merchandise, and the seventh and last chapter is on taxation. The scientific validity of this arrangement depends wholly on the correctness of Professor Perry's fundamental theoretical positions, which it is not proposed to discuss here.

The present tendency of economic thought is toward conceiving the subject matter of the science in psychological rather than in physical terms. Professor Perry has done yeoman service in preparing the public mind for this change of view by his strong insistence that political economy is not a science of material wealth. As a matter of fact he has never been true to his further assertion that it is a science of persons. He has never consistently developed economics as a science of personal desires, activities, relations, satisfactions, etc., as the followers of Jevons and Menger are doing to-day; but, assuming that a science of the satisfaction of wants by means of buying and selling is (in briefer terms) a science of "sales," and, therefore, a science of "valuables," he has made the latter definition the basis of his classifications. But while he has thus made economics, in all points of form and nomenclature, strictly a science of things, the things ("valuables"), are a genus composed of both physical and psychical elements, and it is the latter that Professor Perry always emphasizes. His work, therefore, serves well to help along the transition from the older to the newer science.

FRANKLIN H. GIDDINGS.

BRYN MAWR COLLEGE.

A Shorter History of the United States for Schools, with an introductory history of the discovery and English colonization of North America, with maps, plans, and references to supplementary reading.—By ALEXANDER JOHNSTON, Professor in Princeton College. New York: Henry Holt & Co., 1890, pp. xvi, 340.

The announcement of another text-book by Alexander Johnston—unhappily posthumous—arouses the expectation of all who had the happiness to know that genial and scholarly man, and of all those thousands who first learned the interest of American history from his works. It is not too much to say that his industry, his enthusiasm, and his power of statement made him one of the first authorities in the history of the Constitutional period.

In appearance and make-up the new work is an improvement on his previous "School History"; and it is in these respects not surpassed by any school text-book. In the first place, the publishers have had the courage to present a book without pictures, and thus to find space for better things. The somewhat fatiguing alternation of large and small type has also wisely been given up. Instead of the sets of questions interjected into the text—a refuge for the poor teacher—we have neat little bibliographies, giving specific references to parallel passages in other common and accessible books. Thus the pupil has always before his eyes a suggestion that there are interesting things "not in the book." The useful system of little maps scattered through the text is also retained and improved by careful drawing and ingenious devices for showing movements of troops. In outward appearance, in typography, in convenience to teacher, pupil, and reader, the book is a model.

Turning from externals, we notice that the proportions are unusually good. Professor Johnston has accomplished his long-expressed desire to write a new book in which the colonies should have less space. The military history is also somewhat shrunken, although it might bear a little more compression. Above all, the book has the great merit of including sketches of the social and economic changes which have so powerfully affected the development of the nation. The pupil must see that history is more than battles, acts of Congress, and Presidential elections. The style is strong, clear, and addressed to people of ordinary common sense.

With so many admirable features, it is a great pity that the publishers have allowed the book to appear with serious defects of detail. Had Professor Johnston lived, and had the strength, he would have subjected the proofs to the final searching revision which is the only assurance of accuracy. We cannot believe that he would have left the colored maps in their present inaccurate and misleading state. The maps copied from those in the "School History" retain errors which he would have been glad to correct; the new maps interpolate the most astounding blunders. Again, in the process of condensing the thought, the necessary provisions and qualifications are often left out, and a statement remains which is no longer accurate. (See pp. 443, 476.) The book also abounds in slips, like the substitution of "south" for "north" on p. 439. Beyond those minor errors, there are everywhere evidences of the weariness which forbade the author the verification of details. Thus on p. 183 we are told that the number of slave-holders (apparently in 1850) was 200,000; a reference to the census would have shown that it was nearly 350,000.

Such errors abound, and the great and deserved reputation of Professor Johnston calls for the correction which it would have been his pleasure to bestow before the book can be made what it ought to be, and may be—the best of all text-books on American history.

ALBERT BUSHNELL HART.

HARVARD UNIVERSITY.

The Colonies, 1492–1750.—By Reuben Gold Thwaites. New York and London: Longmans, Green & Co., 1891, pp. xviii, 301.

This is the first of the volumes on "Epochs of American History," edited by Dr. Albert Bushnell Hart of Harvard. When complete, the three books will form a new history of the United States, lying midway between school text-books on the one side and the elaborate histories, such as that of Bancroft, on the other. The design is, as the editor informs us, to "show the main causes for the foundation of the colonies, for the formation of the Union, and for the triumph of that Union over disintegrating tendencies."

Mr. Thwaites, in preparing the first volume of the series, proposes to show what institutions Englishmen brought with them from home, and how those institutions were changed to suit the new environment. The physical geography of the country, the distribution and habits of the aboriginal inhabitants, and the social and economic condition of the people in each section, as well as the more striking events in their history, are described, all with the view of showing their influence on the development of the American people and their institutions out of English beginnings.

Perhaps, however, the greatest merit of the book is in showing that the Revolution was "the culmination of a century of dissatisfaction in America with the home government in England." A careful perusal of Mr. Thwaites's volume would be an admirable discipline for those examiners who are so fond of putting the question: "Mention three causes of the American Revolution."

It may be truly said for this book that it is a mine of accurate historical information, that the author's view of historical perspective is good, that his language is never ambiguous; and that the bibliography at the beginning of the book and at the head of each chapter will be invaluable to the student of American history. It is, however, overloaded with dates and is lacking in the picturesque. W. H. M.

The Great English Writers from Chaucer to George Eliot.—By Truman J. Backus, LL. D., and Helen Dawes Brown, A. M. New York and Chicago: Sheldon & Co., 1891, pp. x, 410.

Sixteen years ago Dr. Backus published a revised edition of Shaw's "Manual of English Literature." This book has been probably more extensively used than any other text-book on the subject in this country. But methods of teaching English literature have undergone a vast change for the better in the interval. Dr. Backus did much to improve Shaw's Manual by simplifying its somewhat verbose and stilted criticisms ; but still it remained the medium of a method of teaching that was radically defective. Twenty years ago the student was obliged to memorize the names and dates of authors, with criticisms on their works—works that he had never read. The present volume marks the change in method. It is not a revision of the older work. It is an entirely new book, made on a radically different plan. The older book is loaded down with criticisms of all the authors that ever attained a niche, however small, in the temple of fame. The newer book omits the lesser lights and treats only of the great writers, from Chaucer to George Eliot. The former is very meager, the latter very rich, in its illustrative selections. The one gives us heavy, labored disquisitions somewhat after the manner of Johnson's *Lives of the Poets ;* the other presents only such facts about an author and his works as are necessary to prepare the way, or to whet the appetite, for a perusal of the works themselves. In other words, Dr. Backus and his colleague, in the preparation of this work, recognize the truth that the only way to study literature is not to read about literature but to read it ; and that an introductory book should be but as a guide-post pointing out the paths that lead to the Delectable Mountains.

To the writer it has been a pleasure to read this book. Like everything that comes from Dr. Backus's pen, the style is lucid and graceful. The student will be indeed " a dull lump of un-Promethean clay," who can peruse its pages without being incited to know something more of Shakespeare and Scott and Burns and Thackeray than may be gleaned from these pages.

I presume that lack of space forbade the introduction of some names that must certainly be enrolled among the " great English writers." Nothing else would justify the omission of Carlyle and Ruskin, Tennyson and Browning.

It is to be hoped that the authors of this volume will give us another at an early date on the great American writers —a book that is much needed for school purposes at the present time.

W. H. M.

Advanced Lessons in English Grammar for Use in Higher Grammar Classes.—By W. H. MAXWELL, M. A., Ph. D., Superintendent of Public Instruction, Brooklyn, N. Y. New York : American Book Company, 1891, pp. 334.

This work is a happy completion of the series of admirable text-books by the same author, built upon the fundamental idea of teaching that which is desirable and necessary for pupils to know, without overloading their minds with incomprehensible rules, which they can only learn by rote and nothing more. The author evidently looks upon grammar as a means of training the mind to appreciate the correct uses and relations of words in the expression of thought, and not merely as a means of furthering correct speech, which seems, unfortunately, to be the sole aim of the majority of the writers of text-books on the subject.

Grammars have appeared almost without number, grammars of all styles, good, bad, and indifferent, many of them written for no other purpose than to air the whims of their authors or to gain notoriety. Several very admirable books have appeared, but have proved of no service for the classroom, as they were written from the standpoint of the scholar rather than of the learner; and as the result we hear it said on all sides that " English Grammar is taught worse and understood less than any other subject in the entire school course." A careful examination of this work, instead of producing the usual result, disappointment, has left the impression that a successful text-book has been produced. It is simple in method, the definitions are concise and clear, the arrangement of topics is admirable, the exercises are full and carefully selected and arranged. It develops very accurately and systematically, and is distinguished for its brevity, clearness, and uniformity. It embraces a complete and yet simple system of analysis, with lucid explanations of the points which present special difficulty. It is simple enough for the young and sufficiently comprehensive for the more advanced. It is developed in accordance with pedagogical principles and manifests on every page the scholar and practical teacher.

The author has evidently kept in view the three uses of grammar—" as an intellectual discipline, as a key to unlock the meaning of obscure sentences, and as an art that furnishes the rules for correct expression"—while writing the book, and has successfully reached the end desired from the beginning. The book embraces all the theory, and practice upon that theory, that are necessary throughout a high-school course, and is at the same time a text-book containing the principles and rules, as well as their application, and a work of reference suitable for use "wherever difficulties are presented either in the student's own composition, or in literature that is subjected to critical study."

A brief *résumé* of the parts of speech and the theory of the construction of the sentence is given in the first fifty-eight pages. This is followed by chapters on the divisions of grammar, Orthography, Etymology, Syntax, Prosody, and each of these departments is treated separately and fully. The system of word-analysis is sufficient to give the learner a good understanding of the vocabulary of our mother tongue, and is at the same time useful for reference and an admirable model for further work in etymological studies. The chapter on Economy of Attention contains many things that pertain to the better understanding of the use and abuse of language, and which are commonly treated only in works on rhetoric.

While this book has little occasion to touch the disputed points of grammar, it nevertheless adds something to the discussion of them, introduces some good ideas of the author, and shows a mastery of the language in its early historical development and a thorough acquaintance with modern linguistic science. Whether it be possible for anyone to write a book on grammar that will please all sorts and conditions of teachers remains to be seen. In my opinion it cannot be done; at any rate not until some "Academy" is recognized by teachers as the court of last resort, and until the books conform to its *dicta*. This work, however, will commend itself to such teachers as follow rational methods, for the author has shown himself pedagogically as well as scientifically competent for his task.

HENRY CLARK JOHNSON.

CENTRAL HIGH SCHOOL, PHILADELPHIA, PA.

Inorganic Chemistry, Theoretical and Practical. A Manual for Students in Advanced Classes.—By WILLIAM JAGO, F. C. T., F. I. C. London and New York: Longmans, Green & Co, 1890, pp. xii, 458.

A text-book of elementary chemistry is not so rare a thing that the advent of a new one can be looked upon with unmixed satisfaction, unless its methods are so invaluable, or at least original, as to place it in the estimation of teachers *above* those which already exist. The present volume, however, is not only not original in its methods, but it seems to fall below the level of other books of similar scope that already exist. The science of chemistry is too vast and too much dependent upon accuracy of detail to be included between the boards of one small volume ; and it is only by reference to cyclopedic works, and to original essays in the journals, that the student can obtain a grasp upon any portion of the science. A text-book, therefore, ought to aim at nothing but setting forth the outlines in logical sequence and guiding the beginner toward a knowledge of the salient features which distinguish the substances with which he is to deal. A manual, on the other hand, should be a sort of broker between the questions which may occur to the student and the answers which larger works can furnish. What is to be said on any one subject should be collected in one place, and not distributed in little bits here and there ; the method of description and of arrangement should be strictly uniform, and the relative importance of facts should become distinctly apparent from the space accorded them in comparison with the more hasty mention of accessories. All of this is wanting in the present work. The subject-matter is so distributed, that a trained chemist is at a loss to find a subject without reference to the index. Thus, we must look for the law of multiple proportions on pages 21 *and* 99; crystallography and the kinetic theory of gases are disposed of under the heading "oxides of hydrogen," coming between water and hydrogen peroxide ; the periodic law, spectrum analysis, and the laws governing chemical action, form the bulk of a chapter entitled "metals." But, lest one might suppose that the logical order has been abandoned for didactic reasons, there are numerous instances where phenomena are introduced that cannot be intelligible to the student at that stage. Description of the properties of hydrogen serves as an excuse for a paragraph on the behavior of pure and amalgamated zinc toward acids. The insolubility of gold in acids is spoken of under nitric acid, 220 pages before the title Gold. Terms are frequently employed, as if well known, whose definition is given later on. By contrast, the same term is sometimes defined in a number of places. In the attention and space accorded different subjects, there appears to be very little system, and much that is important is slurred over, in favor of minor matters. Finally there is not a single reference to larger works, except in the most general terms.

As to the subject-matter itself, the descriptive part seems to be quite well compiled; the numerical values and equations are correct and the information as to technical uses and manufacture full and fairly accurate. But there are many sins of omission: among the occurrences of carbon, anthracite coal finds no mention; the silicates and the manufacture of porcelain and glass receive very inadequate treatment; absolutely no attention is paid to the characteristic reactions of the various substances, or to a systematic comparison of elements belonging to the same group.

On the other hand, much is introduced which cannot interest or instruct the beginner: the laws of thermodynamics and of crystallography cannot be disposed of in a couple of pages, and mean something to a student who has learned only of hydrogen and oxygen. Besides, these subjects are treated with an evident lack of familiarity. Having defined the Regular System, in crystallography, as that in which the axes are cut by the planes at equal distances, the author is compelled to ignore all the forms except the octahedron, cube, and dodecahedron. A more atrocious blunder occurs on page 101, where the "molecular momentum" is called $m\ v^2$ instead of $m\ v$. There being n molecules, the total molecular momentum becomes $n\ m\ v^2$. He then makes the wrong assumption that the pressure upon the walls containing a gas is equivalent to the total molecular momentum. As he is trying to reach the expression $p=\frac{1}{3}\ n\ m\ v^2$, he now says, "as the pressure is exerted in all directions, that exerted on one plane only is $\frac{1}{3}\ n\ m\ v^2$. The author has discovered a solid bounded by three planes!

Enough—or perhaps too much—has been said, to show how unfit the book is to be placed in the hands of a beginner. It bears every evidence of hasty compilation, including the grave one of obscure language and gross grammatical blunders. The most agreeable part of the book is the mechanical execution and the judicious selection of the illustrations—with the single exception of that on page 293, which is manifestly absurd.

MORRIS LOEB.

CLARK UNIVERSITY,
WORCESTER, MASS

Duty: A Book for Schools.—By JULIUS H. SEELYE, D. D., LL. D., Late President of Amherst College. Boston: Ginn & Co., 1891, pp. 71.

This book, upon a theme in which it is easy to be either stupid or wishy-washy, is interesting and strong. It is a book for children. Its size is small—seventy-one pages of two hundred and fifty words each. Yet so compact is it that it covers the principal departments of moral action. The divisions of the subject are simple and natural, though why under "Duties to Mankind" "Duties in the Family" should be made so distinct from "Duties to Others" it is difficult to understand. The illustrations of principles are few, those few are choice and new. Less is the need of illustrations since vigor of treatment and clearness of style unite to stimulate teacher and student to seek illustrations for themselves. The book is theistic in tone; yet it is nobly remote from either Protestant or Catholic conceptions in religion. It is equally fitted for the parochial school and the public. It is sufficiently religious for the one; and none too religious for the other.

CHARLES F. THWING.

ADELBERT COLLEGE.

The American Citizen.—By CHARLES F. DOLE. Boston: D. C. Heath & Co., 1891, pp. xvi, 320.

This book is intended to present in a simple and concise form the theory of good government, beginning with that of the home and the school, and gradually leading up to the general plan of our National and State governments. A most commendable feature is the emphasis laid upon the moral side of the practical questions in which good government is involved. The work is adapted both for a text-book and a reading-book, and is written in a pleasant and interesting style suited to the comprehension of young pupils. The author has not forgotten that most pupils leave school at an early age, and that, unless they receive the elementary training for useful citizenship while in school, they will not develop that interest in the affairs of government which every American ought to possess.

The subject is discussed under five heads: beginnings of citizenship, the citizen and the government, economic duties, social rights and duties, and international duties. The whole concludes with an excellent list of fifty books for reference, bearing directly upon the subjects treated.

In the treatment of political, social, and economic questions the author has aimed at a fair presentation, and as a rule he has discussed them from the standpoint of patriotism rather than partisanship.

The book would have been improved had there been inserted at the end of each part a series of suggestive questions, that would induce the pupils to think clearly upon the topics discussed. In the hands of a patriotic and enthusiastic teacher this book will do much toward preparing boys and girls for a higher citizenship than is possible to-day.

E. H. C.

VIII.

EDUCATION IN FOREIGN PERIODICALS.

The Socratic Method.

R. M. WENLEY, D. SC., IN THE LONDON "JOURNAL OF EDUCATION."

"Socrates appeared at a turning-point in Greek thought, when philosophy, while discrediting the bare existence of truth, had failed to furnish any homogeneous account of the world or of human life. His mission was, thus, to probe the commonly accepted dogmas of speculation, and to show how far skepticism was capable of justification or to what extent it was unwarrantable. He made the method of the Sophists his method, and in this way turned it to new uses. He adopted the dialogue, because it was the means of instruction best suited to his purpose, and because, in the contemporary social state of Greece, it was the most generally understood, and therefore the most likely to be successful. His attempt was, putting the matter in a nutshell, to induce others to use their own rational faculties.

"What, then, is the Socratic method precisely? It is often described as the method of imparting knowledge by means of questioning, or by a skillfully contrived series of interrogations. While this definition contains nothing wrong and in no way misrepresents the fact, it is far from adequate. Questioning may have reference to many things, and it is exactly in the *kind* of interrogation that Socrates differs from any other thinker. As distinguished from questioning of the common order, Socratic investigation does not attempt to elicit definite answers relating to matters already studied. It is rather an effort to render the mind as active as it naturally can be. The desire is to draw out the knowledge possessed by the individual apart altogether from special preparation. It refers, that is, to general notions. And for this purpose each answer may be said to beget a fresh question, till at length, cleared by the process, the so-called pupil arrives at a more competent apprehension of the conceptions which his mind has in its own right, so to speak. The Socratic method may therefore be termed an oblique means of arriving at self-knowledge and at an evaluation of those mental counters, as it were, which, because in common use by all men, cannot but have a certain current worth fixed by tacit, if not by explicit, consent. Socrates conceived it to be his business to bring about a distinct understanding with respect to this tacit consent.

. . . .

"Has this method, we inquire, any practical bearing upon our daily work? Can it be employed by us in imparting the ordinary facts incident to the scholar's education? And if these questions are to be answered in the negative, is there anything left for us of this once famous method? Broadly speaking, I do not think that the *genuine* Socratic method is in any way eminently suited to convey scholastic instruction in the strict sense. The theory that all knowledge is within and only awaits suitable assistance to be drawn forth, has unquestionably certain very apparent applications in the sphere of ethics; but, then, ethical instruction, in the ordinary meaning, presupposes a definite maturity and a character at least partially formed. The materials, to put it plainly, are here mainly lying fallow in the individual; they require to be clearly pointed out, to be reconstructed, and perhaps to be explained, ere they can affect the as yet unconscious person with transforming effect. In the region of what may be termed positive instruction such processes are, however, almost altogether inapplicable. Historical incidents, customary orthography, scientific conclusions, and the like, cannot be constructed by means of question and answer—*i. e.*, by means of deliberation on ideas common to the interlocutors. For, ere the method can be applied, a certain prior attainment is presupposed. The facts of science have to be assimilated from the outside, as one may say. Even in the case of adults who possess no knowledge of a specific circumstance, the dialectic method cannot be employed. They may be 'quick at the uptake,' as we put it; they may be able to show aptitude; yet for the nonce they cannot but be treated as if they were children. To take an example: I, for instance, am wholly ignorant at the present moment of the exact meaning of the term 'volt,' in common use by electricians. I am aware that it has some reference to the energy of an electric current; but how this energy is estimated, or what primarily the term covers, I do not know. Nor would any amount of questioning elicit the knowledge from me. I must go to something outside of myself, must assimilate this, and only then would the method become applicable. It might be employed by someone more skilled in order to give greater definition to the idea which I had framed. But, until some such idea had been procured, questioning would be of no service.

"Now, the knowledge which it is our daily business to impart to children, both small and large, stands very much at this level. Something has to be put into them; not much can be pumped out of them apart from prior study. The method of question and answer, as applied to elicit information learned from books, is not the true Socratic method, although, as we shall see in the sequel, the Socratic method may, to suit present exigencies, be enlarged so as to include this. But we have to bear in mind that the true Socratic method has reference to common notions naturally formed by the intellect, and not to special information painfully acquired from ascertainable sources. In the main dialectic has application to those diffused ideas in which all men are more or less ready to agree with one another—to the ideas, *e.g.*, in virtue of the possession of which man is a social animal. Or, bringing the contrast to a point, the questioning with which we are most familiar has a necessary objective reference; it has to do with what is, for a time at all events, unfamiliar to the pupil; and nearly everything may be said to be unfamiliar to the youthful mind. The true Socratic method, on the contrary, has a subjective reference; *i. e.*, it has chiefly to deal with those conceptions which we of more mature years usually form simply because we are human beings. Here reflection, or self-criticism, canvassing of the ideas of others, and, above all, deliberation along with others, is of high value, because it tends to give greater definition to those fundamental conceptions which render it possible for us to recognize that we lean upon our fellow-men at every turn. For some such reason, accordingly, I am inclined to think that the Socratic method, in any strict sense of the phrase, cannot be readily employed in imparting new information to children. It presupposes the very thing which this instruction is intended to convey. It implies, to be precise, the possession of ideas already more or less clear, and an understanding of the suitable linguistic medium for the expression of such ideas. To employ familiar terms, it presupposes experience in the general sense of the term, and acquaintance with some of the departments of knowledge. Educational authorities, like Pestalozzi and

Girard, who advocate the use of what they loosely call the Socratic method in the instruction of children, invariably draw attention to the strict limits within which its application is possible; and these limits are entirely due to the new signification with which they are pleased to endow the method. Interrogation of the kind which we have been contemplating may very well lead to certain fresh conclusions in cases where attainments natural to the mind may be presupposed—as, *e. g.*, in the simpler discussions concerning time and space; or where the materials necessary to knowledge do not lie far afield, as, *e. g.*, in the less complex moral judgments. It is of very little value beyond this province, because, instead of imparting, or rather eliciting, knowledge, it becomes an instrument, shall we say of torture, in that it is devoted to an attempted extraction of the non-existent.

"This being so, are we to come to the conclusion that the *maieutic* art—the art of bringing ideas to birth, is without application in our daily work? Probably we should arrive at such a decision with much reluctance. In the personality of Socrates there is so much that attracts that it seems a species of sacrilege, especially to a teacher, to cut one's self adrift from it. Nor, on further reflection, does there seem to be any imperative necessity for this. Certain obvious applications of his method still remain possible, although the present circumstances and aims of education are as far removed as the poles from those incident to Greek life. We must therefore be prepared, as I have already hinted, to put a liberal interpretation upon the phrase. And so long as we remember that we are doing so, no fault can be found.

"First, then, if interrogation be regarded in what may be called its pseudo-Socratic aspect, it certainly is not without its lessons. Suppose that the scholar have acquired the sufficient minimum, in geography, or history, or the like, how, precisely, may skillful questioning on this basis be turned into an instrument for further learning? If the interrogation be thoroughly systematic it may advance the pupil somewhat thus. The information which he has, the scholar picks up in his own fashion and retains in his own way; fashion and way are, as we know, alike apt to be peculiar. The real teacher, by well-considered questioning, can partially transform this knowledge. He can bring his pupil to apprehend that there is knowledge *and* knowledge; that materials put together in one manner convey a far more vivid notion when related according to a different method. The idea which the mind forms is not a dead thing, but a living organism. If it is actually to live in the mind of its possessor, the parts must be set in their true relations to one another. What these relations are, the pupil, as often as not, cannot perceive in the course of mere acquisition. But when he has so far mastered the materials as to be able to employ them, a skillful teacher can enable him to frame a fresh notion, in which each part is properly subordinated to the resultant whole. Thus the process of interrogation becomes, to all intents and purposes, a species of deliberation. Teacher and taught lay their heads together. The former, like Socrates, knows what he wants; the scholar, like Socrates' friends, is capable of being led; and, as a consequence, the one so directs the other that knowledge, which is at once sufficiently based and accurately constructed, results. This, as every teacher perceives, implies, on the face of it, no common ability in the instructor. For it presupposes that he has in his mind's eye the most vividly realized concept of all he desires to impart. So vivid must this concept be that the teacher cannot but in some sense feel himself one with it; and, being able to recognize it as a part of himself, he can throw his whole personality into the task of transferring it to others. Absolute mastery over the idea to be imparted is the indispensable preliminary to success in what is rightly called the *master's* art. Listlessness or half-knowledge is, from the Socratic view-point, utterly fatal. While, then, this interrogation, which is being constantly applied to children, is non-Socratic, in that it implies prior study on the pupil's part, it is thoroughly Socratic in its reference to the teacher's attainments and equipment, but most characteristically in the kind of the aim which it embodies. We, one and all, want this distinct mental perception of what we desire to teach. We want it, because we see in Socrates himself what a potent instrument it is; and we share in his spirit when we attempt, by means of question and answer, to set the knowledge which our pupils have in fresh lights, and so to render it more adequate to the facts, to endow it with the living mental reality on which what we are accustomed to call "interest' entirely depends. The acme of teaching on this method is to be able so to arouse the pupil that the master's way of regarding the subject on hand becomes his ideal. How hard a saying this is, we are all aware. But, if there be a determination to face even the greatest difficulties in the Socratic spirit, none need despair of reaching at least some measure of Socrates' success. And in my humble opinion, to be able to impress one's self upon the young so as to give new direction to their thought, even in what may appear to be such prosaic subjects as grammar, geography, or history, is to possess a mission. For no teacher should ever permit himself to forget that, in the spirit in which the least is regarded by his pupils, the greatest will assuredly be done. Like Socrates, the teacher has his opportunity and his task ; he has also Socrates' vocation or call, and, if he be faithful, a portion in that triumph, so conspicuously won by the Greek protomartyr, which men call the power of influencing others.

"Finally, and in a word, another aspect of the matter may be noticed. We have seen that, by extending the content of the Socratic method somewhat, it may be said to have pertinent application both to pupil and teacher in the ordinary course of routine. Returning now to its stricter sense, as that which deals with ideas apprehended, but not necessarily learned, it has an important bearing upon the teacher's conception of his art. For it implies that all sham knowledge is to be criticised away, not only in the case of others, but in the far more difficult instance of self ; and it points to a certain aim which the teacher ought to attempt to realize. In other words, the Socratic method, so far as it is negative, informs the teacher that he must ever be a learner—that he must constantly be attending to his own attainments, not merely to extend them, but to be assured that they are perfectly solid and capable of standing the most rigorous examination. And, with this as a preliminary, it proceeds to reveal the spirit whereby the teacher ought to be inspired. As men are able to form true conceptions themselves, so they are capable of framing an ideal of the end to be achieved by the possession of such conceptions ; but not otherwise. Thus inspired, it needs little telling to perceive what the spirit of their instruction will be. If working in the truly Socratic manner, the teacher ought to have a conscious aim—he ought to desire to be perfectly understood. This clearness should be productive of similar definition in the minds of others. But to this end there cannot but be a common understanding, based upon principles in conformity with which all are able to act. Hence these principles must be elucidated and explained, that they may effectively appeal to the hearer. Thus, the teacher's ideal on the Socratic method, is to show pupils that *his* ideas can be put to practical uses in knowledge—and by idea is meant, not an abstract theory, but a definite conception. The very practicing of them in this way of exposition enriches them. The teacher's knowledge progresses by the mere fact that it passes from him to another. His aim, therefore, ought to be to put others in a position to progress similarly. And, seeing that he himself is advancing, the demands of this ideal will ever be on the increase. The spirit of the true educationist, accordingly, is one with that of the prophet. As an instructor, Socrates would say, he must take heed that knowledge is transformed from simple information into active power. The moment the teacher proceeds to work this transformation, he assumes the prophet's mantle. By a sudden flash he perceives that the growth of this power can have no end. When, as with Socrates, the method of instruction is vivified by an ideal of this sort, the meanest detail takes on new significance; it becomes ancillary to a consistent purpose. In a word, careful study of the Socratic method in its various aspects, and with due regard to the differences of time and place, may fill us with a fresh conception of the nobility of the occupation in which we are engaged. We shall not, indeed, be oppressed with a sense of our own importance, but rather be impressed by a perception of the possible results of our ordinary avocation. And, working thus, in the shadow of a great ideal, there will be less need for the fear that we are toiling aimlessly, or without consciousness of the effects which we desire to produce. We shall, it may be affirmed, have in a manner been beforehand with an answer to that question which must be asked at some time or other of every teacher, be it put by himself or by his fellows. It is a question, too, which, were teaching all that Socrates thought it ought to be, would never fail of reply. Of what 'spirit must we be, so that our work shall be least likely to stand in need of reformation'—of being done over again by another?"

The Educated Proletariat in Germany.

DR. L. VIERECK, IN "ZEITUNG FÜR DAS HÖHERE UNTERICHTSWESEN DEUTSCHLANDS."

"When the discussion took place in 1888, on the very general request for the extension of the privileges of graduation from the Real-Gymnasium, the Minister of Education gave as his main reason for opposing the request, the fact that the professions were already overcrowded with graduates of the Gymnasium alone. Dr. Steinbart of Duisburg promptly replied that the monopoly of privileges enjoyed by graduates of the Gymnasium was the very cause of the overcrowding complained of, and that the concession of similar privileges to graduates of the Real-Gymnasium would lessen, not aggravate, the evil of overcrowded professions. Very general interest was taken in the discussion thus raised, and a prize of one thousand marks was offered for the best essay on the 'Causes of the Overcrowding of the Learned Professions, and Its Remedy.' No less than seventy-six treatises were submitted to the judges, and as the result of their deliberations the prize was equally divided between Dr. Pietzker of Nordhausen, and Dr. Treutlein of Carlsruhe. The essays of these gentlemen have been published, and present a most careful and exhaustive examination of the whole question.

"The conclusion is irresistible that the root of the evil is to be found in the organization of our scholastic system, which treats the secondary school merely as a step in preparation for the university. There are other accessory causes, both industrial and social, but this pedagogic cause is the chief one.

"The development of political and commercial conditions has had an unmistakable influence in greatly increasing the number of students preparing for a professional career. Increased political rights have involved new duties, and these in turn necessitate a higher degree of intellectual preparation on the part of the people at large. The force of competition has brought about a more efficient mental training among men of business; for those possessing it are able to succeed when those without it fail. All of these influences have worked together to send more students than ever before to the secondary schools. And here lies the difficulty. The students, as a rule, do not select the kind of secondary school best suited to their needs, but the Gymnasium, because of the marked privileges conferred by law upon its graduates. From it they are led on to the university, and then to a professional career, simply because that is the line of least resistance. As a result, every profession is overcrowded, and thousands of highly-educated young men are unable to earn a decent living.

"Again, the Gymnasium and university training is the sole avenue of approach to the higher offices of the state, and German parents have a most absurd and exaggerated idea of the importance and dignity of these government posts. This is another illegitimate inducement to prefer the Gymnasium and the university to the training for commerce or industry. In our higher social class there is an undeniable feeling of aversion toward an industry, as a calling for the youth of the family, because it seems to involve manual and physical labor. There is also a groundless overappreciation of the culture value of a classical education. These are potent forces in driving boys to the Gymnasium and increasing the numbers of the dangerous and rapidly-growing educated proletariat."

The Education of the Romans.

M. L. CHAUVIN, IN "L'ÉDUCATION NATIONALE."

"The Romans worshiped the same gods as the Greeks, though under other names; but they never laid as much stress as did the Greeks upon the popular religion. The true Roman religion must be sought at the family fireside. Each family honored their own ancestors, and looked upon them as protecting powers. The paterfamilias, high priest of the family worship, exercised an authority which has never been surpassed among any other people. 'At once priest and judge,' says Dunay, 'the father's authority is absolute. He alone holds converse with the gods, for he alone performs the *sacra privata*. As master he controls not only the labor, but the life, of his slaves. As husband, he condemns his wife to death if she violates her plighted faith. As father, he kills the child that is born misshapen and sells the others until, after the third time, he loses his rights over them. Neither age nor dignity can free them from his control. Whether consuls or senators, they may be torn from the tribune or the Senate house, and sent forth to death.' Religion and such paternal authority as this gave to the family a place in Roman civilization such as it had not been possible, even in Sparta, to procure for the state. As the child never ceased to belong to his parents, so they alone were charged with his education. This is a characteristic never to be lost sight of.

"It is to be remarked also that Roman institutions, including those relating to education, were not created all at once, after the fashion of the theoretical plans of Lycurgus and Solon. They had, on the contrary, been developed gradually in response to definite needs, and experience had confirmed or changed them. This explains their eminently practical character, and is the reason why they have been perpetuated to our own time in the countries that were subject to Roman influence.

"In the third place, the Romans, who had built up their nation along rude and rough lines, pursued the useful as an end in itself, rather than the beautiful and the good which had been the Greek ideal. This is true in a marked degree of their educational theory and practice.

"The child who is permitted to live is brought up at home after a fashion at once very simple and very efficacious. Boys and girls are both taught to read, to write, and to count. Then the father trains his son, not in the complicated physical exercises of the Greeks, but in the hard labor of the military drill. He teaches him the fundamental principles of law, a knowledge always held in high esteem in Rome. He takes him to the forum, to the *comitia*, that he may learn his duties as a citizen. The mother inculcates her daughters with the womanly virtues and teaches them the occupations proper to their sex, as well as the art of managing the house. She also instills generous and patriotic sentiments into the hearts of her sons.

"In the earlier periods of Roman history each family was a school of morality and of civic virtue. But after the republic had accomplished its gigantic task of universal domination, and the Romans were enriched by the spoils of conquered peoples, the period of decadence began. A looseness of morals arose, and education felt the influence of it. Parents gave over the care of their children to freedmen and slaves, and the children soon became vicious and without respect for their parents and elders. The influence of Greek culture accelerated the decadence. The rhetoricians and sophists who flourished in Greece at the time of its conquest had a most baneful influence upon the studies and character of the Roman conquerors.

"The first Roman schools date from the third century before Christ. They multiplied rapidly in the succeeding centuries. They were private establishments. Some of the most celebrated of them were endowed under the emperors, and toward the close of the imperial period state universities were organized at Rome and Constantinople. The schools were divided into several classes, corresponding very well with the usual divisions of public education. The schools of the first, or lowest, class were really popular schools. In them children of both sexes were taught to read, to write, and to count. They also received some idea of geography and of geometry, being aided by maps and geometrical solids. The children of well-to-do parents resorted to schools of the second class, to read and expound the Greek and Latin classics. In addition to this, the rhetoricians gave instruction in eloquence, so highly prized at Rome. Oratory was taught with such minute care that it was carried to a ridiculous excess. The solid and enduring qualities of eloquence were held in lower esteem than the form of statement and its artificial adornments. It was with this study that the youth of the aristocratic families concluded their education. Some few pursued, in addition, a little poetry and music, astronomy, mathematics, and natural science."

EDUCATIONAL REVIEW

DECEMBER, 1891.

I.

LOWELL AS AN EDUCATOR.

The English-speaking world has been prompt to recognize that in the passing away of James Russell Lowell a great man has entered upon his immortality. The man of action, as well as the man of letters, has received generous recognition. Lowell is recognized to have added new luster to American citizenship, not simply because he had great talents but because he used them greatly. Whenever he spoke and whenever he wrote, whether in his captivating prose or his stirring verse, the charm and the power were but the man giving expression to himself. Not his thought merely, but his personality, informs his writings to a singular degree. So one who did not know Lowell might picture him to himself from his published works. He was found in actual intercourse to be the genial gentleman, the warm friend, the ready wit, the polished scholar, the earnest patriot, the great-souled man, that one might easily infer him to have been from what he wrote. Thus what he wrote was powerful because it was genuine. The life illustrated what the voice uttered. With all his gifts he won the ear, but he reached the heart by opening his own.

James Russell Lowell was graduated from Harvard College in 1838. He was appointed Smith Professor of the French and Spanish Languages and Literatures and Professor of Belles-lettres at Harvard in 1855, becoming Smith Professor Emeritus in 1886. It is not the purpose of this paper to dwell upon Lowell's career as an instructor. It is rather the aim to speak of him as an educator of the people, for his audience circled the globe, and was coextensive with the English speech. Nevertheless it is pertinent to point out that this man who moved nations by his writings, counted it an honor to be a professor at a university. Fortunate indeed were they who wandered through the fields of literature hand in hand with him! But the college doubtless did for Lowell, when a student, what it will do for all who have the ears to hear and the eyes to see. The college made him—to apply to himself the words he used to describe in general its function—"a man of culture, a man of intellectual resource, a man of public spirit, a man of refinement, with that good taste which is the conscience of the mind, and that conscience which is the good taste of the soul." Gladly and royally he repaid his Alma Mater in the rich years of his maturity. The influence exerted by the continued connection of such a man with a university cannot be overstated. He lures within its influence those whom he captivates. He is in his own person the demonstration that study which may produce such splendid fruits is worth while. The university atmosphere is more inspiring because of his presence. But those whom he reaches directly from the professor's chair are but a handful compared with the multitudes who are influenced by the fact of his being there. Men learn to value that which they see to be valued by those whom they honor. Men may question as they will, whether a college education unfits a man for this or that. They will not doubt that it has rich power to reward, so long as men like Lowell count it an honor to be identified with college or university.

Attention has been called of late to the singular fact that with few exceptions the noted writers of the present generation in this country are men who have not been to college. This is in marked contrast to that which was true of Lowell's generation. The historians of note are still college-bred men, for historians must be students, and students are still trained in colleges and universities. But perhaps the majority of names that would come to one's lips to-day as he should call the roll of those whom he would think of in this country as literary men, would be men without the college degree. It behooves the colleges to ask themselves searchingly why this should be so. I may not pretend to speak with authority upon the matter, but two thoughts occur to me as possibly helping to account for the circumstance. A large proportion of the flower of the college-bred men who to-day would be in the prime of their powers, went to the war. Many perished, and others in great numbers had their attention permanently turned from the reposeful to the active side of life. In the years immediately succeeding the war many could not go to college, who in happier times would naturally be there, and these found in the stirring scenes with which they had become familiar the awakening of the spirit which has budded into flower and fruit in its season. But another cause, I think, is to be traced to the colleges themselves. The last twenty-five years have been marked by a great development of the scientific spirit. This is shown in the colleges not only in the greater importance given to scientific studies, but in the introduction into all studies of the scientific method. This has lent attraction to the already fascinating study of philology, and in all language courses has tended to develop the scholar rather than the literary man. Of course the two characters are not essentially hostile to each other. Lowell himself conspicuously was both. But there is such a thing, I conceive, as the loss of the literary sense in the scientific study, and the only way to preserve both is to emphasize both. My own observation is not extensive enough perhaps to justify an opinion, but I have an impression that in the colleges the last quarter of a century has been more friendly to the philologist than to the man of literary tastes and faculties whose parts did not lend themselves kindly to scientific methods. Doubtless the literary critic must always be a philologist as well as a man keenly sensible of literary beauties. But it is not clear that this is true of the producer, particularly in the domain of the imagination. The great service which a man like Lowell could render to the average student who came within his reach was to make him fond of reading, to cultivate within him a taste for good reading which might last as long as he should live. Such a service is not to be rendered, except to the very few, along the lines of philology, invaluable as that science is, but it must come as the answer of heart to heart, while the master interprets to the student the thought and the power and the inspiration dwelling immortal in the leaves he turns.

Lowell's power to stir men by his writings is admitted. His virility appeals to young and old alike. In his poem called "Columbus," he puts into the mouth of the great discover, on the fateful day that was to determine whether or not his voyage should issue in disappointment, these striking words:

> For I believed the poets; it is they
> Who utter wisdom from the central deep,
> And, listening to the inner flow of things,
> Speak to the age out of eternity.

With this conception of the poet's function it is easy to see how he fulfilled it. Out of the momentary situation which drew forth "The Present Crisis," he developed in thrilling verse the message which is eternally true, that wrong decisions when the choice is between good and evil are full of misery, that no slavery is more harmful than the slavery of the present to the past. Instruction, inspiration, the present may properly look for in the past; but to be bound by the past, so that the present is not free to act according to its own lights, that is intolerable. Progress, not stagnation, is the law of life. For Harvard's Commemoration of her patriot dead, at the close of the war, he sang the country's song of praise and thanksgiving for her great deliverance. No American can read it and be unmoved. Forever it will have power to inspire to a loftier patriotism. Because he was in very truth a poet he could do these things. Whatever else he was, he had that nameless gift which makes a few men seers. He "spoke to the age out of eternity."

In his essay on Dryden, Lowell says: "Without earnest convictions, no great or sound literature is conceivable." Throughout his own writings the evidence of "earnest convictions" lies upon the surface, but it is clear that they are wrought into the very fiber. Even when he speaks truth with a jest as Hosea Biglow, you perceive that the humorist is an earnest man. He illuminates almost every theme with a touch of humor, but the humor is subservient to a serious purpose. He is never flippant though often gay.

In politics he was a true man to the last. No one smote the demon of slavery lustier blows than he. Always clear in his views of public duty he never feared to express them. It is said that when he was recalled from England by President Cleveland, he visited the White House, saying to the President, that he had called to pay his respects, like St. Denis, "with his head under his arm." So gracefully he accepted the chances of politics, illustrating again the virtues of that democracy of which he so often and so fondly wrote. Toward the close of his life International Copyright and Civil Service Reform commanded his heartiest services, as had the cause of human freedom in his earlier days. Eminent in letters, distinguished in public service, ringing true to every blow that tried his manhood's metal in a life of more than threescore years and ten, Lowell was an educator of the highest order. To quote a phrase from one of the utterances of the Rev. Dr. Richard S. Storrs, "Better than new Californias every year are such examples as these to a nation that would be noble."

SETH LOW.

COLUMBIA COLLEGE, NEW YORK.

II.

THE ACTION OF THE COLLEGES UPON THE SCHOOLS.

It is said that we pass among foreign nations for a very self-complacent people, and perhaps our complacency is in nothing more conspicuous than in what concerns education. For what we have done in elementary education for the free instruction of all classes, we have reason for pride and self-gratulation; but it is always safer and more fruitful to fix our attention upon what remains unaccomplished than to hug ourselves for what we have achieved. Europe long ago solved some educational problems which we are only beginning to feel the need of studying, but which we can already see will soon press urgently for solution, if we would allay well-grounded discontent and turn to account a prodigious waste of power.

Of these problems the most manifest and the first in importance is the coördination of education. Whatever criticisms we may make upon the substance, the aims, or the principles of education in European states, we must admit that abroad education is organized and that here it is not. There, even in the poorest states, like Greece, all grades of schools, from the university to the kindergarten, are brought into organic union; here is an almost utter want of organization, a chaos of relations. To see and acknowledge our defects is the first condition of improvement, but we recognize that Europe has had an immense advantage over us in three things: in an established social order, in concentrated civil authority, and in having educational development directed by able minds. Speaking generally, our educational system, or more properly, lack of system, expresses in some measure the guesses and convictions of a great number of minds, some very able, and some not able at all. But we must add, what is of great moment, that abroad education has been developed from the top, not, as with us, from the bottom. Europe had universities before it had secular schools. The youngest of the German universities is more than seventy years old, and the oldest will soon celebrate its six hundred and fiftieth anniversary. But the German school system, as we know it, is not quite a hundred years old, and that of France, which has had a university since the tenth century, scarcely counts a generation, though its beginnings mount up to the early years of this century.

Our different historical situation obliged us to begin at the other end. We have had "grammar schools" for almost two hundred and fifty years; but we have hardly yet succeeded in creating a university, though many second-rate high schools flourish under that name.

There seems to be an impression that gradually the relations of the elementary, grammar, and high schools to each other are settling into intelligible and reasonable order. Thus I read in a report to the National Council of Education: "There is a close connection between elementary and secondary education." But this is rather a hope than a consummation. Within ten days an agent of the Board of Education in Massachusetts has expressed to me his deep regret that there is so little connection between the lower schools and the high schools. It is not probable that in other States the relations of these classes of schools are better adjusted than they are in Massachusetts, but the gentleman to whom I have alluded states in a report of 1884 that, in a large number of high schools, the first year is given up to grammar-school studies, while many have only one, others only a few of the high-school branches proper, in the entire curriculum. "The high school furnishes a mixture, in many cases a muddle, of primary and secondary instruction."[1]

There is a tendency in the country districts to imitate the systems of cities; but every city and every country town or parish is independent of every other, and diversities of every kind and degree may exist in adjacent localities.

---

[1] Report on the High Schools of Massachusetts, by George H. Martin, Agent of State Board of Education.

The State may or may not make certain prescriptions. It may require that arithmetic and physiology be taught, but there does not seem to result any appearance of uniformity in school curriculums; there is no common standard and no recognized goal.

The circumstances that determine the subjects of a school programme are various. The individual likes and dislikes of pupils for this or that study, the whim or hobby of some school-committee-man, the prejudice of a parent, the preference of a teacher, all count as elements in the decision as to what shall be included and what left out. There is little disposition to defer to authority. The local superintendent, or the principal, may be a man of experience, of sound judgment, and of learning, but his counsel may not be asked, or if it is, as a matter of form, be quite disregarded. The school committee is absolute. It may be composed of honest, modest, intelligent men. Unhappily it is sometimes not so composed, or it may be dominated by an energetic crank or ignoramus. The meetings of the committee are often secret, and their acts subject only to local criticism. Add the fact that the possession of a little power often strangely exalts men in their own estimation and blinds their eyes to their own defects, and we have all favorable conditions for the exhibition of acts of levity, conceit, and rashness. I have known a school committee, not a hundred miles from Boston, to concoct a course of study and order it put in operation without consulting either the superintendent or the principal. The principal was an able administrator and a successful teacher; he was liked and esteemed, and the committee meant no disrespect; it probably did not even occur to them that they were doing a thing for which they had collectively about the same fitness that they had to carve a statue of Athenē. I have known precisely the same thing done in one of the foremost cities of this country, at a time, too, when the committee had in its employ a council of highly paid educational experts.

A comprehensive and absolute uniformity is probably neither practicable nor desirable. Allowance must be made for the different circumstances and needs of different communities. But neither present satisfaction nor hope for the future is to be got from such chaos as now exists. In a shifting population like ours, the lack of uniformity works great inconvenience, loss of time, and waste of money. A family moving from one community to another must commonly buy a new outfit of text-books, and as text-books, with us, are mostly made big for the profit of publishers, the expense is heavy. Children find themselves too far advanced in some subjects, too far behind in others to join classes with profit. Sometimes they must wait for the beginning of a term, in order that suitable adjustments may be made. I have heard a teacher of long experience say that a change of school commonly means a loss of three, sometimes of six, months in a child's education.

Great differences would naturally be expected among secondary schools. The preparatory schools and many academies make the fitting of boys and girls for college their chief aim. With high schools this is a subordinate end. But within each class of these schools there is an astonishing absence of uniformity. Except in so far as college admission requirements either set the fashion or determine the subjects that make up the school curriculum, and often even in consequence of the various demands of the colleges, great differences exist in the requirements for entrance, standards of excellence, branches of study, order of studies, and duration of the school course. Scarcely could two schools be found that would not show variations in some or all these respects. Some are higher schools only in name; some have a so-called business course; many have two courses, one English, the other classical; in some, elementary studies occupy a large share of time, in others, but little. The length of the course varies from two years to five and even six. This condition of things would be deplorable, even if we did not look beyond the schools; but great injury results to the higher education. College instruction must be pitched at a low level not to be over the heads of many who have been but half-trained, and the best men are apt to get disgusted and grow idle. In my own class in college there were men who could neither read nor write a simple Latin sentence, and there were men who had received the splendid training of Easthampton Academy under Dr. Henshaw. The entire absence of any external regulative authority, or even of a superior advisory or consultative council, would naturally result in extreme diversity; but the influence, which, above all others, should have contributed powerfully to a tolerable organization of secondary education has unfortunately been its greatest obstacle.

Incidental reference has already been made to requirements for admission to college. The colleges of this country occupy a unique position. They are absolutely independent corporations, more independent than the universities of Germany, which have been said to be the most independent bodies in the world. They can arbitrarily fix, and have so fixed, the conditions of entrance. They contract or extend, raise or lower, their requirements without consulting the schools that feed them and without regard to each other; what they command, the schools that send up students must do. To disregard their prescriptions would be fatal to the reputation of any fitting school. It is evident, then, that these prescriptions are a mighty factor in our secondary education. They effectually determine what subjects shall be taught in every preparatory school in the land. As the duration of the course in these schools is usually only three or four years, and as the admission requirements cannot be satisfied in less time, it follows that the control of the college is comprehensive and complete.

But the influence of the colleges is by no means limited to the fitting schools; and this is a point of capital importance. The high schools are also feeders of the colleges, and in fact furnish more students to the colleges than do the fitting schools proper. From 1866 to 1890, both inclusive, 1758 students entered Harvard from public schools, and 1605 from endowed schools. During the same period from twenty-two to thirty-seven per cent. of all entrances to Harvard were from public schools.

The programmes of these schools must therefore be shaped to meet the needs of those, however few in number, who wish to prepare for college. Moreover the aggregate number of candidates for admission to college from high schools is no criterion of the number of schools represented. Probably few schools send more than five or six, many not more than three or four, some only one or two. "In 1890 no fewer than 122 schools and colleges contributed the 348 persons who entered [Harvard] College."[2] This is an average of less than 3 to an institution. But this is not all. Many private schools, not to be designated especially as fitting schools, prepare boys and girls for college; probably a still larger number do not. Add the large class of high schools that are not feeders of colleges. All these feel profoundly the influence of neighboring colleges and of the larger high schools. The inclusion of a subject in college admission requirements gives it a kind of sanction. The exclusion of another relegates it to a position of educational inferiority; hence it would be strange if, in the choice of studies, we found in the programmes of these schools great departures from those of schools immediately related to colleges. The same causes determine in great measure the succession of studies, the time allotted to them, and even the methods of instruction. The principal of a large and excellent private school in New York State, who seldom sends a boy to Harvard, told me that the new requirements for admission to Harvard had revolutionized the course of study in his school.

If these statements are true, and I believe they are indisputable, what a power it is possible for the colleges to wield, through united action, for the reasonable organization of secondary education! Has their great power been exercised hitherto to that end, or has it tended to a chaos worse confounded? Let us see. In a general way the question has been already answered; but its great importance demands something more explicit. For a thorough and satisfactory exposition some very desirable information has not been attainable, but an examination of college catalogues will shed a little light. I am not able to state the exact number of institutions calling themselves colleges or universities in the United States, but it probably does not exceed 500. I propose to give some of the results of an examination of the catalogues of 487 of such institutions, including a few in Canada and New Brunswick. Forty-two of them have requirements for admission differing but little, except in a requirement of United States history, from those of a school in Boston with which I am tolerably well acquainted, that receives boys at eleven years of age, and of the grade of the third class in grammar schools. For the sake of being explicit, and to show how low these college requirements are, I give those of the school referred to:

---

[2] See President Eliot's Report for 1890, p. 7.

1. Ability to read English readily and intelligently.

2. Ability to distinguish parts of speech, tenses, voices, cases, transitive and intransitive verbs.

3. Ability to perform simple arithmetical questions mentally.

4. Facility in working fractions, both vulgar and decimal, and compound denominate numbers.

5. Facility in writing legibly from dictation.

6. A knowledge of the most important, and (to children) interesting parts of geography, with outline map-drawing, from memory, of the Atlantic States, and of the western and southern countries of Europe.

It would hardly be possible to set conditions of entrance to college lower than these, without reducing them to zero. That alternative is indeed adopted by a surprisingly large number. No fewer than 148 so-called colleges seem to throw wide their doors to all comers; at least, their catalogues are silent on the subject of admission requirements. These are mainly southern and western colleges and not a few of them are Catholic institutions. Nine have requirements but hold no examination. Of these the most noticeable are Washington and Lee University, Lexington, Va., and Clark University, Worcester, Mass. The latter admits only graduate students or those of equivalent attainments. To illustrate fully the diversity of college admission requirements would demand more space and time than are at the writer's disposal, and an exhibition of statistics that would tire the reader. But some notion may be conveyed by a few general observations and by a brief selection of facts touching important points. The subjects of the requirements are found to range from the merest rudiments of arithmetic, reading, and writing, up to the higher mathematics, Greek, moral philosophy, and the history of art. Let us draw illustrations from the four great departments of history, mathematics, science, and language. It is hardly an exaggeration to say that the histories of all states and all times are included, from Babylonian and Assyrian history, specially designated in the requirements of one college, and of Persian history, in those of another, down to the history of Texas and North Carolina, the former required by three, the latter by two colleges.

I have already indicated the range in mathematical studies, and we should naturally look for greater uniformity here than in other branches. Arithmetic is required by the greatest number of colleges, including bookkeeping or "commercial arithmetic," which is expressly demanded by fourteen colleges. Algebra comes next in order of uniformity. This branch is for some reason a favorite both with schools and colleges. In the high schools of Massachusetts there is no single subject that is so uniformly found in the course of study, and none to which more school time is devoted. Of those colleges that publish formal requirements, only 25 make no mention of algebra, but the number of those which do not examine in that subject is probably several times as great. Geometry is included in the greater number of catalogues, but 121 say nothing about it. Besides these we find trigonometry, solid geometry, analytical geometry, advanced algebra. Natural science in some form is slowly working its way into college admission requirements, but as yet there seems to be no concensus of opinion as to what branch of science is most manageable in school classes, or best suited to develop and train the observing powers of children, or likely to prove most fruitful as a resource of interest and pleasure in after life. Physical geography, if that may be included as a natural science, occupies the first place, and is required by 162 colleges; chemistry by 16; botany by the astonishingly small number of 55; physics by 108; zoölogy by 23; geology by 9; biology by 2; astronomy by 17; "elementary science," without any more precise designation, by 12. Twenty-three colleges require neither Greek nor Latin; 66 Latin but not Greek; 220 require neither French nor German; 7 French, but not German; 17 German, but not French. Two make Greek optional; 39 German; 16 French. Two allow a choice between French, German, and Greek; one between French, German, and Latin; one between French, German, and Spanish.

At first glance there would appear to be an unexpected degree of uniformity in the matter of English. But a closer examination proves disappointing. Fourteen colleges require no special preparation in English. The most conspicuous of these, and, I believe, the only New England college, is Yale. It would be interesting to know why one of the foremost colleges in the land, and one of the ten associated colleges in New England, refuses to fall into line in respect to an English requirement. The most probable reason is that the feeding schools of Yale train their students so admirably in the correct and ready use of English that a requirement and examination in that subject is superfluous, either as a test or an incentive. Harvard is much less fortunate, since only about four in a hundred of its candidates for admission are found able to write a creditable essay, correct in expression, spelling, and punctuation. The English requirement in 82 colleges is some knowledge of English grammar. One hundred and thirty-two others ask for grammar and rhetoric or composition. To these illustrations of diverse subjects, a few of a miscellaneous sort may be added. Four colleges require drawing; 14 the "Bible"; 23 Bible history; 5 political economy; 15 mythology; 8 United States Constitution; 3 moral philosophy; 1 history of art; 4 pedagogics.

Allusion has been made to optional substitutes, or equivalents of admission requirements. As a matter of fact many colleges allow equivalents in place of what I have been obliged to call, somewhat loosely, "requirements." Some colleges allow much freedom of choice, others but little. Some designate with minuteness what authors and what amounts will be acceptable as substitutes, others content themselves with a general statement that equivalents within certain limits are permissible. Now, if there were any aim at a degree of uniformity in options, it is clear that the difficulties that confront the schools in an endeavor to meet every diverse demand would be, or might be, sensibly mitigated. But when we see no evidence that similarity in requirements is even thought of as a good thing, we should naturally look in vain for any seeking after agreement in optional substitutes. Take, for example, substitutes allowed in natural science and history. Nine colleges allow astronomy in place of some other science; 4 geology; 22 botany; 11 zoölogy; 3 biology; 28 chemistry; 33 physics; 17 physical geography. In place of the assigned history, one finds these alternatives: general history, mediæval history, United States history, modern history. Take Greek. Of colleges requiring Greek, 150 do not require Homer; but it would appear that sometimes a portion of Homer would be accepted in place of some of the prescribed Herodotus, or even of some of the Attic prose. Some colleges allow New Testament Greek as an alternative, others Lysias.

One pupil may be fitting for a college that does not examine in Homer, but prescribes a certain amount of Attic Greek with an alternative. In the same class is another preparing for a college that requires certain books of the Iliad, for example, with the Odyssey as an alternative. Still a third must have certain other selections from Homer with Herodotus as an option. Somehow the teacher might make a shift to unite the three in some part of the Greek instruction, but perfectly to suit the instruction to their different needs his class should be divided into three sections.

No doubt the purpose of the colleges in offering alternatives was to afford the schools some relief from their embarrassment in trying to satisfy very various demands. But in the absence, as has been shown, of any concert of action, each college indicates alternatives without regard to those of any other; and, considering what account must be taken of individual preferences in schools in choosing allowable substitutes, I am of the opinion that in offering options the colleges have added a fresh cause of distraction and confusion. That they have not afforded very effective relief, the following *suspiria de profundis*, drawn from a report on Secondary Education at Toronto, July 11, 1891, may be sufficient to prove. "A prominent high school of an eastern State reports, 'We are fitting boys and girls for twelve or fifteen different colleges, and no two require the same preparation." The principal of a well known preparatory school in New England says: 'The present diversity is distracting and demoralizing, unreasonable and unnecessary.' John Tetlow, in a paper on Modern Languages, written in 1888, referring to Harvard, Wellesley, and Smith, says: 'A class containing pupils fitting for each of these three colleges, must either be broken up into three classes in French, or must do at least double the amount of work required by any one college in the group.' "

But there are other diversities, apparent, implied, and hidden, not less troublesome to schoolmasters than those of subjects of study. A long chapter might be written on the different amounts, as well as the different kinds of knowledge with which secondary teachers must fit out candidates for college. This topic, however, I must dismiss with brevity, for materials do not exist for a thorough and satisfactory exposition. What the printed requirements of admission are, anyone can find out with time and patient search. What the real requirements are, nobody can discover, nor will any person ever be able to discover, so long as college reports are so meager, or should I say so discreet? It will, of course, be understood that I am referring now to standards of excellence on the required subjects. What degrees of attainment in knowledge and in power are requisite? We have no means of guessing. If we could read the papers set, and knew something of the marking system, an approximate opinion could be formed. That great differences in standards exist, even where printed requirements show but little variation, is certain, and is known to every preparatory teacher of large experience. I happen to have personal knowledge of some facts that confirm what has been said. I recall two instances of the rejection of young men, and justly, for lack of proper preparation, at a certain college, who were immediately received at other colleges. Three others could not be recommended for the college where they wished to enter, and indeed would have had no chance of passing the examination, but were admitted without conditions at a neighboring college. Cases are frequent of boys leaving school a year before completing a course designed expressly to fit for college, and entering triumphantly, to the hurt of the school from which they go and the college that receives them.

It is generally believed that forty per cent. of correct answers will pass a boy at Harvard, and there are excellent reasons for believing that the standard is not higher. If this is true, then at many other reputable colleges the standard on the admission examination is probably not above thirty, or even twenty-five per cent.

It now remains to be said that a great number of colleges have no standard at all. That is to say, they admit students on certificate from schools of the most various character and quality. The practice of admitting students on certificate is unfortunately becoming more and more common. No fewer than 177 accept certificates in place of an examination in all subjects, some in certain subjects but not in all. Probably a considerably greater number than that stated admit on certificate, for it is certain that colleges that make no announcement in their catalogues that they will accept certificates in place of examination do, nevertheless, freely admit on certificate. Conspicuous examples of New England colleges are Amherst and Brown. According to President Eliot's Report for 1889-90, page 90, Harvard and Yale are the only New England colleges that examine students for admission; at least, that would seem to be the meaning of his words; but in the catalogues of Amherst, Brown, Wesleyan University, Bates, etc., under "Admission" one fails to see any implication that there is any other gate of entrance except by that of examination. How the New England colleges that accept certificates in place of examination satisfy themselves of the efficiency of the instruction which applicants for admission have received, is not known. I am not aware that any one of them undertakes to make an official inspection of fitting schools. In other parts of the country this is done, or said to be done. Ninety-seven colleges, it would seem, inspect preparatory schools, or in some way satisfy themselves that certain schools deserve to be designated as "approved" or "accredited," and thirty-seven publish lists of "approved" schools.

We have now seen something of the diversity of subjects, and of the diversity and the absence of ascertainable standards in the admission requirements. But our examination would be very incomplete, if we did not consider the effect upon secondary schools of the nature of these requirements and of the method of testing the applicants' knowledge and power, where examinations still obtain. Printed requirements, as they are found in college catalogues, are and must be more or less indefinite. Examinations supplement and in some measure interpret these general statements. Examination papers show what kind of knowledge and power the colleges desire and value most; they indicate where the emphasis should be laid in the instruction in every subject. They furnish in a general way a kind of syllabus in every branch of study as a guide to teachers. If, for example, in a succession of history examinations, the causes and relations of great events are made prominent and names and dates are but little inquired about, the college says, in effect, "you see how we think history should be studied." I have seen a profound change wrought in schools that prepare for Harvard College, in the teaching of Greek, solely from a different mode of examining, without any announcement by the college that a modification of the instruction in the schools was desired. For some years Harvard was satisfied in the Greek examination with the test of double translation, that is, from Greek into English and from English into Greek; and in my opinion no better test has been, or can be, devised, no test at once so fair and so searching, and none so stimulative of the most fruitful method of teaching. Then there came a change in the mode of examining without any reason given, without conference with teachers, and without warning. For a number of years there has been a reversion to the old way, and formal questions in grammar constitute a not unimportant part of the examination. It is accordingly necessary now to "get up" formal grammar. The questions are not unreasonable, and it may fairly be said that candidates ought to possess the knowledge called for; but a boy may know much that he cannot state well, and in writing Greek he may be able to make a correct application of principles that he has acquired unconsciously and yet be unable to formulate his knowledge. Accordingly the time devoted to Greek in school can no longer be directed to the single purpose of ultimately opening to the learner the treasures of Greek literature through a method that shall be the best training of the mind. I have been told on excellent authority, that is, by a gentleman whose whole time is given to the inspection of schools, especially high schools, that the Harvard mode of examining in physics is revolutionizing that study, at least in Massachusetts. A change not less remarkable nor of less educational value, in the teaching of geometry, can be traced directly to the influence, not of altered requirements, but of a decided change in the character of the papers set at the Harvard examination. Not very many years ago a student could count on passing creditably in geometry, if he could reproduce the demonstrations of his text-book. The test might, therefore, be one of memory. Now he is called on to prove propositions that are probably new to him, and to solve original geometrical problems. That is, the test is one of power. The same is true, in the main, of the examinations in Latin and Greek. The candidate must show that he can do a certain thing, not merely that he remembers something that he has learned. The improvement in classical teaching, and the fresh interest imparted to the study as a consequence of a change seemingly so slight, can hardly be estimated.

Let us draw another illustration, and it shall be the last, from the examination in English common to all the associated colleges of New England with the exception of Yale. The colleges happily conceived the idea of stimulating the schools to better work in English, and it was proposed to bring this about by requiring the reading of certain works and the power to write an essay of moderate length at the examination, in a given number of minutes, on some subject drawn from one or two of the books assigned to be read. The schools responded with great interest and activity. In no subject connected with their work have teachers shown more earnestness of purpose, or put forth more honest, energetic effort. How to awaken interest, how to conduct the reading of the prescribed books, what are proper subjects for compositions, how should compositions be corrected, what amount of practice in writing is requisite, what proportion of time should English have in a school curriculum, these, and many other questions, have been meditated and discussed without end. With what results? I answer, with results, as measured by college examinations, and as tested by college examiners, profoundly disappointing. What Tufts College and Harvard College think of the training in English, as indicated by the essays written at the examination, is well known. Hardly so many as four or five in a hundred are found able to pass creditably the test at the last named institution. This is deplorable enough. On this subject there is general discouragement in the schools, and almost universal dissatisfaction. Success appears to be largely a matter of chance. Faithfulness and hard work on the part of the pupil, patience, knowledge, and skill on the part of the teacher, do not seem to tell. It is of course absurd to suppose that not more than five in a hundred are well trained in the schools. What is the matter? In my judgment the trouble lies in the method of examining. The candidate must be ready to produce an essay in about one short hour, under the most trying conditions, on some one of four or five topics picked out by the examiner from any one or two of the whole ten or twelve volumes prescribed! Nothing can be said against a requirement that certain books shall be read, and there is no reasonable ground for complaint in the choice of books. Furthermore that candidates should be required to show that they can write correctly is not unreasonable. Still I have never conversed on the subject of this examination with any person of mature years who was conceited enough to suppose that he could do what is demanded of youths of eighteen. I have heard many schoolmasters say that they could not possibly pass the examination, after taking a class through the prescribed books. But success in passing the examination is, after all, a minor matter. The peculiar mode of examination, I mean particularly the imposition of an essay on some one of a half-dozen topics that the examiner may select out of many thousand possible ones, obliges the pupil to "get up" the books prescribed in such a way as to kill very effectually all pleasure in those works, if it does not breed utter disgust for good literature generally.

Here we have a very beautiful and striking illustration of the mischief that may result from a vicious mode of examining.

As distinct then, to a certain degree, from the subjects and the content of college requirements, the character of the examinations exerts a great influence for good or ill.

It has all along been implied that secondary schools are quick to respond to the formal and the implied demands of colleges, so far as their circumstances allow. They do this both because they must and because they desire to. They are ambitious, probably too ambitious, to send their students primed to pass successful examinations. The reputation of schools that are feeders of colleges depends—not, indeed, so much with the colleges as with the general public—on the success of students in passing with credit the entrance examinations. Those schools rank highest that have the fewest students rejected or conditioned. Hence, skill in anticipating the sort of problems that will be set, the questions that will be asked, the passages given for translation, the subjects for composition, etc., becomes an important factor in a teacher's success and in the standing of his school. If a teacher, as sometimes happens, uses his best efforts to minify the importance of the entrance examination in the minds of his pupils, to interest them in study for its own sake, and to give a large and liberal training, he commonly finds himself too weak to stem the combined currents of public and private feeling. In the eyes of parents and pupils the entrance examination is the goal of study and aspiration. It is the center of interest, and knowledge does not pay that has no relation to that crowning event.

The power of the colleges, through means and by ways already indicated, to lift our secondary schools seems to me to be hardly appreciated by the colleges themselves; for, if it were, one would think they would long ago have addressed themselves earnestly to the study of the matter, and that they would have invited the counsel and co-operation of schoolmasters as to the best and most possible ways of advancing the standards of admission. Twice within twenty years the faculty of Harvard College have specially invited the heads of important schools from different parts of the country to meet them for consultation, and those meetings proved of great practical usefulness. Several important additions and modifications in the requirements resulted from the suggestions of teachers; others, proposed by members of the Faculty, but thought by the teachers undesirable or impracticable, were withdrawn. Have such conferences been held by other colleges? I have not known of any. But why should they not be? The colleges would be sure to meet with the readiest sympathy and the most hearty co-operation from schoolmasters. It will probably be admitted that a great advance has been made in the amount and quality of the work of secondary schools within twenty years. Of this gain, surely no inconsiderable part has been brought about under the stimulus of improved and increased admission requirements. The promptness and energy with which the schools have responded to greater demands will in coming time be regarded as an astonishing fact in the history of education. Mr. William F. Bradbury, headmaster of the Cambridge Latin School, in summing up the increase of the Harvard requirements, says:

"There have been added to the requirements of 1870, French (or German), to which in the Cambridge Latin School not less than four hundred recitations are given; physics, not less than two hundred; English, not less than three hundred; that is, in all, an increase of not less than nine hundred recitations; or, counting two hundred recitation days in a year, with three recitations a day, this makes just a year and a half's increase in the time of preparation. There is no question that, with the greater difficulty in the Latin and Greek composition, in the algebra, and geometry papers, in the addition of French, physics, and English, Harvard College has herself made such demands as, with an equally thorough preparation, ought to increase the age of the candidates not less than two years."

Mr. Bradbury even understates the increase. Till within a few years Harvard designated the amount of reading in Latin and Greek; so much Anabasis, so much Cæsar and Vergil; nay, the books were indicated from which passages would be chosen for the examination. Now the mode of examining, setting passages previously unseen, amounts to a great increase in the requirements.

Formerly the first three books of the Iliad, about 1500 lines, was the requirement in Homer; now the candidate must be able to translate average passages selected at random from the Iliad and the Odyssey. It is not safe to send up boys now, who have not read double the former amount. Moreover, concurrently with this prodigious increase in the college requisitions, has gone on a diminution of the school year, from 258 days in 1860, to 200 days at present; so that, as Mr. Bradbury observes, there were more schooldays in *four* years then than in *five* years now.

From all that has been said, it ought to be apparent that an immense responsibility rests upon the colleges in respect to secondary schools. It is right that the colleges should consider first their own needs; it is not right that the highest interests of the schools should be disregarded. But there is no incompatibility. On the contrary there is a unity of interests, and it is only necessary that there should be a full recognition of the natural and necessary relations of the two classes of institutions greatly to advance the good of both. A great gulf has separated them. Recently the subject of shortening the college course by a year was discussed with great vigor and earnestness, at least in New England. Such a step was certain to react upon the schools directly and powerfully; but who, in all that discussion, saw so much as an allusion, or at most, more than an allusion from any college source, to its effect on the schools? College presidents and professors joined in the debate, but each and all utterly ignored the schools. To their minds evidently college education is a thing apart, distinct in its nature, scope, and aims, not a continuation of secondary education. Hardly was any voice heard from the schools. There was no recognition that this was a subject of common interest. I repeat, a great gulf has existed between the schools and the colleges. They ought to begin to draw together. The schools have greatly benefited and greatly suffered from the action of the colleges; but the injury has been accidental, and the good has been mostly unforeseen and unpurposed. One important and promising step has been taken toward closing up the chasm between the two classes of institutions, by the formation of the New England Association of Colleges and Preparatory Schools. Why should not other associations of the same kind be formed all over the country?

I find in a report on "Uniformity in Requirements for Admission to College" presented to the National Council of Education, at Toronto, to which reference has already been made, a suggestion that "educators should make the question [of uniform requirements] a national one." This is much too ambitious a scheme. The partial exhibition, in this paper, of the enormous range and variety of requirements, coupled with the extreme diversity of standards of admission, shows that such a plan is as impracticable as it is undesirable. But one sees no reason why groups of colleges having somewhat similar standards should not unite themselves for conference with preparatory schools, to the better understanding and advancement of both.

WILLIAM C. COLLAR.

ROXBURY LATIN SCHOOL, BOSTON, MASS.

III.

A STATISTICAL STUDY OF MEMORY AND ASSOCIATION.

The statistical method has been successfully applied to various departments of mental science; and, indeed, not a few of its problems seem most promising of results when thus studied. General tests of the various mental faculties, and circulars requesting descriptions of personal mental traits, are no longer a rarity, and their use will probably be extended as the experimental basis of psychology becomes more generally recognized. With the double object of interesting the members of my class in psychology in their own mental processes, and of gaining material for such statistical study, I have at times tested their processes of memory and association. On one occasion they each wrote one hundred words as rapidly as possible; fifty such lists I studied with reference to the community of ideas, the nature and time of the associations therein exemplified, as well as to the comparison of the masculine and feminine traits of mind. The results of that study will be brought into comparison with those of the present study. My present data are some seventy lists of words obtained as follows: The withdrawal of a screen revealed a word upon the blackboard, whereupon each member of the class wrote upon a slip of paper the first word suggested by the word upon the board, and folded the paper so as to conceal what had been written; another word was then similarly shown and the process repeated until each student had written ten words. The ten original words were all very common monosyllables, selected for various points on the basis of my former study. The words were: I. BOOK; II. MAN; III. TREE; IV. CAT; V. HAND; VI. HAT; VII. BREAD; VIII. PEN; IX. WRITE; X. BLUE. Secondly, just two days later, and without the slightest expectation on their part, the students were asked to write as many as possible of the words they had written forty-eight hours previously, and to regard the order. I then wrote the original ten words upon the board and again asked them to write in order as many as possible of their associations recorded two days previously. Let us call the results of the first test the "original lists," of the second, the "A lists," of the third, the "B lists." The first show the most accessible associations to ten common words; the "A" lists show to what extent such can be recalled by memory alone, upon short notice, and when written with no expectation of future use; the "B" lists show to what extent the recollection is aided by the presence of the suggesting words.

First as to the unaided memory. I have 70 original lists, or 700 words, written by 42 men and 28 women, or in the proportion of $\frac{3}{5}$ and $\frac{2}{5}$; of A lists I have but 64 serviceable ones, contributed by 39 men and 25 women, on which appear but 411 words; that is, 35.8 per cent. of the words have been so far forgotten as to be beyond voluntary recall after 48 hours interval. This includes 72 cases in which wrong words (often of kindred meaning to the correct ones) were written, so that but 339, or 53 per cent., were correctly remembered, and not a single student correctly remembered all ten words. One student recalled nine words correctly; 4 eight words; 9 seven words; 17 six words; 13 five words; 12 four words; 4 three words, and 4 only two words. The attempts at recalling the original order of the words were very unsuccessful; in the best record six words were written in their original order.

In the B lists, in which the original suggesting words are furnished, I find a considerable increase of words correctly recalled; for in 67 lists there appear 640 words; or only 4.5 per cent. are entirely forgotten, and 536, or just 80 per cent., are correctly recalled. On the average each student recalled 2.7 more words with the aid of the suggesting words than without them. Sixteen recalled all ten words correctly; 16 recalled nine words; 14 eight words; 6 seven words; 7 six words; 5 five words; 2 four words, and 1 three words—a very marked improvement upon the A lists. Roughly speaking, the average student remembered 5 of 10 words by memory alone, and 8 of 10 when the suggesting words were furnished.

To determine how this forgetfulness is distributed over the associations to the ten different words, we may count the number of correctly remembered associations under each, both for the A lists and the B lists. In so doing I observe that

	Book	Man.	Tree.	Cat.	Hand	Hat.	Bread.	Pen.	Write.	Blue.	Average.	Average Deviation.
A......	33	48	36	47	15	23	53	32	25	27	33.9	28.6%
B.......	48	54	54	57	51	47	64	57	44	60	53.6	9.1%

while the number of words recalled by memory alone differs markedly according to the suggesting word, the differences after the words are furnished are relatively slight; in the first case from a minimum of 15 to a maximum of 53, with an average variation of 28.6 per cent.; in the second case from a minimum of 47 to a maximum of 64, with an average variation of 9.1 per cent. The various words vary much in their tenacity in their power to fix their associated words in the memory; as many as 70 per cent. of the words associated with Bread, Man, and Cat were correctly recalled; but only 30 per cent. of those associated with Hand, Hat, and Write. It appears, too, that of the ten original words, those having the fewest remembered words connected with them (*i. e.*, by memory alone) profit most by the supplying of the suggesting word.

Perhaps the most interesting point in the original lists is the community of association, or the proportion of cases in which a word suggests the same word to different persons. We most quickly reach a result by counting the number of different associations occurring in the entire lists; I find that only 241 of 700 words are different, or 65.6 per cent. are formed by the repetition of the same associations. In my former study there were only 27 per cent. of cases in which when the same word was written by different persons the following words were also alike; there the word was spontaneously and variously arrived at, here the word is given; and this difference must in large part account for the different ratios of community of association. Again, dividing the words into five divisions, I find one fifth composed of 140 words occurring but once, a second fifth of 61 words occurring 2 or 3 times; a third fifth of 26 words occurring from 4 to 9 times, a fourth fifth of 9 words occurring from 9 to 23 times, and a final fifth of 4 words occurring from 29 to 44 times. The ten most frequent associations are *pen-ink* (made by 44 of 70 persons), *cat-dog* (38 persons); *hand-finger* (30); *bread-butter* (29); *man-boy* (23); *man-woman* (21); *blue-red* (19); *tree-leaf* (13); *hat-cap* (12); *hand-foot* (11). With these very common words it becomes possible almost to predict the word it will most probably suggest on the basis of independent but similar brain-functioning. Such results emphasize the lesson that our mental processes are not so individual and distinctive as we are apt to think, and that both in small and great matters we have much in common by inheritance and training.

In attempting to study the nature of the associations our task is made difficult for lack of a generally recognized system of classification; the best that I can do is to adapt a classification that was suggested by the words themselves and seems simple and significant; (I) whole to part or general to special, such as tree-leaf, or tree-oak; (II) part to whole or special to general, hand-arm, blue-color; (III) object to activity, as pen-write; (IV) activity to object, write-pen; (V) object to quality as tree-green; (VI) quality to object, as blue-sky; (VII) by natural kind or one object suggesting another of the same class, as cat-dog, both being names of animals, *bread* suggesting other articles of food, *blue* other colors, and the like; (VIII) by similarity of sound as man-can, write-height; (IX) miscellaneous, including all that are ambiguous or not easily classified. These nine types of association are present in the following proportions:

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.
Number.......	121	9	13	39	48	10	342	36	82
Per cent.......	17.3	1.3	1.9	5.6	6.9	1.1	48.8	5.1	11.7

The most striking predominances of association by *natural kind* (agreeing with my former study); other prominent ones are those from whole to part and from object to quality.[1] We note, too, that the association in one direction is stronger than in the reverse; that associations from whole to part are more frequent than from part to whole and the like; it has also been found that the former process takes less time than the latter.[2]

There are several other problems which it would be of interest to study, but for which our data are hardly sufficient; amongst these the possible differentiation of the associations

---

[1] It should be noted that (IV) and (VI) could hardly be well represented, there being but one verb and one adjective; the indication is that the association from an activity to an object connected with it is a very strong one.

[2] To test the constancy of such results under varying conditions, I will compare them as far as possible with those reached by Prof. Cattell; he studied the associations of 400 to 500 persons to some common words. The three words *tree*, *hat*, and *hand* occur on both his list and mine, and the following are the most frequent associations on both lists in their order—on the whole a fair agreement.

TREE.		HAT.		HAND.	
Cattell's.	My Words.	Cattell's.	My Words.	Cattell's.	My Words.
Leaf........ 212	Leaf 13	Head.. 70	Cap.. 12	Finger...... 219	Finger........ 30
Branch..... 45	Branch...... 7	Feathers... 46	Head..... 10	Nail........ 23	Foot.......... 11
Green....... 28	Green...... 4	Straw. 41	Band...... 9	Arm.... ... 20	Arm 6
		Ribbon.... 33	Bonnet. ... 5	Foot.... ... 15	Mouth. 4
		Bonnet.... 32	Feather.. . 3		

Cattell has shown that the word influences the kind of association; thus *tree*, *hand*, and *book* invite analysis and have several prominent parts, *man* and *cat* even more than other words suggest objects of their kind. He finds, too, that associations from "whole to part" and the like are more frequent than in the reverse direction, and other points of agreement would doubtless appear were the data of the two studies similarly treated. It may also be noted that both in Cattell's results and in the present study nearly all of the very common original words (in my results 7 or 8 of the 10) have one certain association much more common than all others; *man* has *boy; tree, leaf; cat, dog; hand, finger; bread, butter; pen, ink; blue, red.*

recalled from those forgotten, demands a moment's notice. Two suggestions present themselves, first that the kind of association influences the ease of recollection; second, that the frequency or commonness of the association is the important factor. A count of the proportion of remembered associations in each of the nine types, negatives the first supposition (the only distinct result is that associations by natural kind are about 4 per cent. more frequent in the A lists than in the original lists); while a division of the words of the original lists into an unusual, a medium, and a common third shows them present in proportions of 31.9 per cent., 30.5 per cent., and 37.6 per cent. in the A lists, and 28.4 per cent., 33.4 per cent., and 38.2 per cent. in the B lists, thus suggesting that the more common associations are somewhat better remembered than the more unusual ones. I also failed to find any constant characteristics by which to distinguish the words appearing on the B lists, but not on the A lists, from the rest.

My final point will deal with the comparison of the men and women, and first as regards their powers of memory. In all the A lists 35.8 per cent. of the words were completely forgotten and 53 per cent. correctly recalled; but of the words written by the men 40 per cent. were completely forgotten and 49.8 per cent. correctly recalled, while the women forgot only 29.2 per cent. and correctly remembered 58 per cent.; thus indicating *a very appreciable superiority of memory in favor of the women.* Other interesting points are that the associations to *write*, *book*, *tree*, *pen*, and *man* are relatively better remembered by the women, those to *hand*, *hat*, and *bread* relatively better by the men; that 10 men and 15 women remembered their associations to *write*, 13 men and 2 women those to *hand;* and, finally, that while 16 men recall fewer than five words only 3 women do so, and while 15 men recall more than 5 words 16 women do so, there being half again as many men as women.

The B lists of the men and women, on the other hand, are substantially alike; in other words, the furnishing of the original word aids the men more than the women and thus makes the proportion of totally forgotten and correctly recalled words the same for both—men, 5.5 per cent. and 79.5 per cent.; women, 3 per cent. and 80.7 per cent.

Regarding community of association my former study shows that in spontaneous and unrestricted association this is markedly greater in women than in men, and also that the extent of such community varies with the number of persons tested.[3] To gain a fair basis of comparison I selected by chance lists of 42 persons ($\frac{3}{5}$ men and $\frac{2}{5}$ women) to compare with the lists of 42 men, and similarly chance-selected lists of 28 persons to compare with the lists of 28 women. The result shows no clear difference between the two sexes. Percentage of repetition in 42 combined lists 56.7 per cent.; in the men's lists 56.7 per cent.; in 28 combined lists 53.2 per cent., in 28 women's lists 55 per cent. It would seem, then, that when common words are given the tendency to repeat one another's associations is not stronger in women than in men, though in all tests in which an unrestricted choice is allowed it has appeared markedly greater in women. There are, too, certain more special preferences, such as that men favor associations *by sound* and *from part to whole*, women from *whole to part* and *from object to quality* (both also appearing in my former study), which the present data strongly suggest, but cannot establish as beyond the influence of chance.

After I had completed the study of the association and memory processes in college students, I was given opportunity, through the courtesy of Professor Peckham, Principal of the Milwaukee High School, to make a similar test upon some of the classes in his school. It would certainly be interesting to tabulate for high-school pupils results parallel to those obtained for university students, and trace in such a comparison what difference the five years of schooling that separates the one from the other had brought about. Such a comparison should rest upon more extensive data than those at my command, and the conditions of the test should be precisely similar in the two cases. The Milwaukee tests were not personally conducted by me, and differ further from those made at the university, in that three days instead of two days intervened between the writing of the original lists and the remembered words, and in the large proportion of cases in which repetitions of the original word occur as associations. Regarding the former it has been shown that the curve of forgetfulness is not greatly different after 72 hours from what it is after 48 hours. The number of repetitions seems due to the fact that the question was asked whether such associations were allowable, and the answer given that they were allowed but not desirable. However, I have made a special count of such repetitions and find that they do not affect the general result in any respect that will be here touched upon. I therefore feel justified in adding a number of suggestive comparisons between high school and university in order to stimulate further research in this direction. To facilitate the comparison I will add everywhere in parentheses with the initials *U. S.* the corresponding results for the university students.

---

[3] The increase of the percentage of repetition with an increase in the number of persons tested appears thus in the present study: with 14 persons it is 36.4 per cent.; with 28, 53.2 per cent.; with 42, 56.7 per cent.; with 70, 65.6 per cent. This point is worthy of a more detailed investigation.

I have 100 available lists (52 boys, 48 girls), or 1000 words in all. On the A lists I find 516 correctly remembered words, or 51.6 per cent. (U. S. 53 per cent.), and 420 or 42 per cent. (U. S. 35.8 per cent.) entirely forgotten; on the B lists 795 words, 79.5 per cent. (U. S. 80 per cent.), correctly recalled, and 48, 4.8 per cent. (U. S. 4.5 per cent.), totally forgotten. On the average each pupil remembered 2.8 (U. S. 2.7) more words with the aid of the suggesting words than without them. The general outcome is thus the great similarity of the results in the two cases, whatever difference there is being in favor of the university students. Even the distribution of the correctly remembered words among the associations with the ten original words is strikingly alike; and we find that the percentages of the remembered words in the two tests differ on the average by only 2 per cent. in the A lists, and 1.1 per cent. in the B lists. There is some indication that the first and last words give rise to especially easily remembered associations in high-school pupils. The statistical regularity of the results is thus emphasized, and corroboratory evidence gained of the value of this method of study.

A comparison of the mental community in the two tests must, in the main, be limited to the number of different words occurring in the entire lists. I find 331 such, or 66.9 per cent. (U. S. 65.6 per cent.). The differences in the conditions of the test prevent any detailed comparison, but the number of words occurring once only, 237, or 23.7 per cent. (U. S. 20 per cent.), and the fact that a few words, 7 (U. S. 4), make up one-fifth of the entire lists, illustrate the close similarity of the results of the two tests in this respect.

The nature of the associations is hardly susceptible of direct comparison. Under this head I will merely call attention to a few interesting facts. While the pupils were writing their associations to "hat" some musicians were playing on the street, and we find "music" to be the associated word 44 times, and in addition such words as *bass*, *drum*, *play*, *cornet*, *band*, *trombone*, *orchestra*, etc., making in all 71 words referring to music and not to "*hat*." This admirably illustrates the effect of accidental concomitants in association as well as the readiness with which the juvenile mind is distracted. Some preferences for a certain association may be observed quite different from the preferences evinced by university students. Thus the latter associate *butter* with *bread* (29 of 70) but the high-school pupils mention *eat* (15) and *pie* (15). With man the university student connects boy (23) or woman (21); the high-school pupil "girl" (27). With "blue" the former associates "red" (19), the latter "color" (26) and so on; while in each the word frequently mentioned by the one occurs rarely or not at all in the lists of the other. There is thus considerable indication that a detailed study of strictly comparable data in the two cases would yield significant and valuable results. We take up next the differences between the sexes;

on the A lists the boys remembered only 41.5 per cent. of their associations, while the girls recalled 62.5 per cent. (U. S. 49.8 and 58 per cent.), showing as before and still more marked the superiority of the feminine mind in the matter of memory. The boys totally forgot 51.3 per cent. (U. S. 40 per cent.) and the girls only 31.9 per cent. (U. S. 29.2 per cent.). In test B the boys remembered 72.1 per cent. (U. S. 79.5 per cent.) and forgot 6.3 per cent. (U. S. 5.5 per cent.); the girls recalled 86.3 per cent. (U. S. 80.7 per cent.) and forgot 3.1 per cent. (U. S. 3 per cent.). As before, the difference between the two sexes is lessened when the suggesting word is supplied. Regarding the extent of the difference between the two sexes in high school and university, it is clearly greater in the high-school pupils; it also appears that, while university boys remember better than high-school boys, high-school girls remember better than university girls. Moreover it is true that, as with the university students, the boys remember better their associations to "hat" and "bread," the girls better those to "write," "book," "pen," and "man." There are, too, sexual preferences for certain associations; *e.g.*, "Blue" suggests *dress* to six girls, but not once to a boy. All these conclusions are suggestive but require further confirmation.

The community of associations is here readily investigated because the numbers of boys and girls are so nearly alike (52 boys, 48 girls), and the tendency found in all similar studies but hardly suggested in the university tests is here clearly manifested; that is, the greater community of association amongst women than amongst men. The girls use only 134 different words while the boys use 208; and in the girls' lists there are only 91 words that occur but once, while in the boys' lists there are 148. All this is indicative of the greater tendency for women to repeat one another's thought, the greater individuality of the thought processes of men.

It has not hitherto been mentioned that the high-school pupils belonged to two classes, 42 of them—25 boys and 17 girls—to the first year (average age 16 years, 3½ months), and

58 of them—27 boys, 31 girls—to the third year (average age 17 years, 9½ months). The intention was to consider separately and compare the results of the two classes, but the data hardly warrant such detailed treatment. I have, however, counted separately the number of correctly remembered words in the A and B lists for the two classes, with the following result.

	First Year.			Third Year.		
	Total.	Boys.	Girls.	Total.	Boys.	Girls.
A......	201=48%	104=41.6%	97=57.1%	315=54.3%	112=41.5%	203=65.5%
B......	318=75.7%	178=71.2%	140=82.4%	475=81.9%	203=75.2%	272=87.8%

We infer that the third-year pupils have better memories than the first-year pupils, the superiority being contributed in greater share by the girls than by the boys; and again that the difference between the two sexes is more pronounced in the third-year than in the first-year students, though in both cases it is greater than in university students. How far these results are typical, how far accidental, future research must decide.

I have thus described the most important results of a simple test of memory and association in a few classes of students. Such results become more valuable when compared with like results obtained by other experimenters with other classes of persons and under varying conditions. But even in their present form I venture to think that they bring into clear relief certain aspects of everyday and useful mental processes, not otherwise easily illustrated. They have, too, several practical bearings upon disputed problems in education and in psychology, which, with an increase of data, will increase in value and applicability.

JOSEPH JASTROW.

UNIVERSITY OF WISCONSIN,
MADISON, WIS.

IV.

COLLEGE ATHLETICS AND HEART DISEASE.

DOES THE PRACTICE OF ATHLETICS TEND TO PRODUCE HEART DISEASE?

A few months after the opening of the Hemenway Gymnasium at Harvard University in 1880, it was reported in the daily papers "that at least half of the men examined were afflicted with palpitation of the heart on account of cigarette smoking and coffee drinking." This item was taken from a humorous article that appeared originally in one of the college papers.[1] It is hardly necessary for me to state at this late day that this assertion was not true, and should never have been extracted from the original context and considered seriously by the daily press. Nevertheless it was so accepted, and went on its errand of misrepresentation. Similar statements have also been made from time to time as to the prevalence of heart disease among college athletes. Unfortunately for any cause, no statements are so damaging, or so likely to become crystallized into public opinion, as those which have some slight foundation in truth.

No physician will deny that the drinking of strong coffee and the excessive smoking of cigarettes do induce in some persons a functional disturbance of the heart. No physician who has had any experience in examining men who make violent physical efforts, whether in the practice of athletics, or in manual labor, can doubt that such efforts often create in some individuals considerable cardiac excitement, which, if long continued, might lead to serious results. Now the important questions are:

1. What kind of heart troubles are most likely to arise from over-exertion?

---

[1] *Harvard Echo*, February 10, 1880.

2. What are the exercises and conditions that cause the greatest cardiac disturbance?

3. How large a per cent. of those persons practicing athletics are injured by their physical exercises?

4. What was the condition of the men injured or likely to be injured at the time of their entering athletic contests?

5. What are the precautions to be observed in practicing athletics?

It is impossible to treat these questions as fully as their importance demands in the space allotted to this article.

For many reasons I should have preferred not to take up the influence of athletics upon the health, until I could tabulate all the data I have at hand, and draw conclusions of more value. The pressing inquiries I have had from different sources during the past year, on this particular phase of the subject, are the only excuse I have to offer for writing such an article at this time. I shall only attempt, therefore, to take up such points as will help to remove from the popular mind some of the false notions entertained in regard to the general subject, and perhaps sound a note of warning against the practice of athletics under certain circumstances.

"Life is organization in action," says Béchard, and this action depends largely upon the circulation of the blood which supplies all parts of the body with nourishment. The heart is the organ which forces this life-giving fluid through the blood vessels to all the tissues, and removes the waste matters which result from tissue changes and vital action. In this respect the heart is like a central engine with a pump that forces water through a building or a city. Any failure of the heart to properly perform its functions not only weakens other parts of the body by overworking them, or by depriving them of their share of nutriment, but also impairs its own efficiency for the same reasons. If this impairment continues for some time, disease of the heart itself or of some part of the organism will be the inevitable result.

The normal pumping capacity of the heart is 70 strokes a minute, that is 100,800 strokes in twenty-four hours, by which it sends about 40,000 pounds of blood through the lungs and body. Under the influence of stimulants, intense mental excitement, or violent physical exertion the heart's impulse frequently runs up to 150, and even 180 times a minute. After this increased amount of work the heart, like any other muscle, needs an increased amount of rest, but inasmuch as it has to keep pumping day and night to sustain life, the only rest it gets is in the relative decrease of the number and power of its strokes or impulses. If the heart does not get a sufficient amount of rest, its muscular tissues will gradually lose tone and become relaxed and over-stretched, just as the muscles of the body do when subjected to a long continued strain, and finally the chambers of the heart, or the large blood vessels, will become permanently dilated. If the over-exertion be still continued then one of the valves of the heart may be ruptured, or the inner coat of a large artery be cracked and torn, giving rise to what is termed an aneurism. Oftentimes the heart becomes enlarged, or hypertrophied, in response to the demands made upon it, and perhaps this is the development most to be expected from over-exertion. This increased size and strength of the heart often compensates for the weakness that accompanies dilatation, and where the person is young and still growing the enlargement is something that usually takes care of itself. These structural changes in the heart and blood vessels are seldom brought about without some premonitory symptoms. A fatigued muscle makes itself known by a sense of weariness often accompanied by pain. A fatigued heart is never felt as such, but manifests itself by very rapid beating or unusual slowness, irritability, irregularity, intermittent action, fluttering and prolonged palpitation and hurried and distressed respiration. These are the warning signs, and heart-strain, dilatation, aneurism, or hypertrophy are the affections that are usually attributed to over-exertion.

What are the exercises and conditions that cause the greatest cardiac disturbance? According to medical authorities, the occupations most likely to give rise to heart troubles are those of carpenters and joiners, iron-plate workers, porters, miners, longshoremen, soldiers, postmen, long distance pedestrians and professional athletes.

When we come to inquire into the specific effect of exercise upon the action of the heart, we find it varies considerably according to age, sex, time of day, season of the year, the condition of the individual, and the circumstances under which it is taken. The average impulse of the heart when lying down, keeping absolutely quiet, is 70 per minute, when sitting up 80 per minute, and when standing 82 per minute. All forms of exercise tend to increase the action of the heart. The greatest disturbance is caused in the shortest time by a continuous muscular strain, as in doing slow strength work on gymnastic apparatus, in lifting heavy weights, attempting to elevate heavy dumb-bells, sustaining the weight of two or three men on the shoulders as in posturing, and the practice of the "tug of war," as it is called. In all of these exercises the muscles of the limbs are under great tension and the muscles of the thorax are contracted so that there is little movement of the chest. This tends to create a blockage in the circulation during the violent exertion, and as soon as the strain ceases the heart is engorged by the rush of blood into the thoracic cavity. This condition of affairs has been greatly intensified by the use of the leather jacket, or the shoulder and arm girdle, now used in the "tug of war." The sudden rush of blood from the brain as well as the muscles occasion the frequent exhibition of fainting now so commonly seen after a hard contest at this sport.

The next group of exercises that are likely to occasion the most heart disturbance are very rapid movements, long continued, where many muscles are brought into successive action though little weight is used, by the arms, as in violent boxing contests. Here the nervous tension and the state of constant expectancy on the part of the brain and muscles, in addition to the real work done, are very exhausting to the heart. The next exercises in the order of severity on the cardiac muscle and the circulation, are the one-fourth and one-half mile runs, short swimming contests at full speed, high jumping, and three-mile boat races.

It is estimated that a person weighing 158 pounds, who jumps six feet four inches high, expends enough force to raise 1000 pounds one foot from the ground. I hardly think this can be a fact, as the position of the center of gravity of the body, when starting from the ground and clearing an object of this height, must modify somewhat the actual number of foot-pounds lifted; nevertheless, the enormous energy expended, and the suddenness of the act, are a great strain on the heart and blood vessels.

The one-fourth and one-half mile runs are especially trying to the heart on account of the large number of muscles brought into action and the length of stride and rapidity of pace maintained by modern runners. Football, wrestling, weight-throwing, the two-mile bicycle and walking contests, four-mile boat-racing, the one-mile, and even the three-mile, running races are not so severe on the heart as the exercises I have mentioned. Running and walking are natural forms of exercise, and the alternate movements of the arms and legs, when not too rapid, tend to facilitate the circulation of the blood. The physical efforts in football, wrestling, and weight-throwing are very severe at times, but not continuous, and the intervals of rest allow the heart time to recover from its embarrassment. In long-distance boat-racing the strokes are slow and rhythmical, seldom continuing above thirty-eight a minute for any length of time, and, as in running, the alternate contraction and relaxing of the muscles of the arms and legs tend to facilitate the circulation. The use of the sliding-seat has brought more muscles into action and thus increased the total amount of strength and energy expended, but it has enabled the oarsman to maintain a better position of the thorax and thus ease the work of the heart and lungs. The effect of these exercises varies with different men under different conditions and circumstances. What some of these modifying conditions and circumstances are, I shall consider under the head of precautions to be observed in practicing athletics.

Now let us inquire how large a per cent. of athletes are injured in taking these so-called violent exercises. During my professional career I have examined over ten thousand men of different ages from all classes and conditions of life. Of this number over one thousand were athletes, professional and amateur, who had engaged for several years, and attained some prominence, in such severe physical exercises as rowing, running, boxing, swimming, jumping, wrestling, football, weight-throwing, fencing, and walking contests. Out of this number of athletes I have not found over one per cent. affected with the slightest cardiac disturbance, and in only two of these cases did I feel positive that the trouble was due to athletics alone.

At Harvard University all of the students have to pass a physical examination and give a test of their ability before they can enter any athletic contests as members of the college teams. This stringent measure on the part of the authorities undoubtedly accounts for the small number of accepted athletes who show any cardiac weakness. It may perhaps be said that some of those who injure themselves, quietly withdraw from athletic contests and seek the advice of their family physician ; and undoubtedly there are a few who do not come up for re-examination for fear of being rejected. Then again it may be said that the majority of athletes are between twenty and thirty years of age, and the injury that they do themselves may not show itself until later in life. But all the evidence we have covering the lives of old athletes is that given by Dr. Morgan in his book entitled *University Oars.*[2] Inquiries concerning the condition of the 294 oarsmen who rowed on the Oxford and Cambridge crews between the years 1829 and 1869 brought out the facts that 39 were dead ; of those living 115 expressed themselves as benefited by their exertion, 162 said they were in no way injured, while 17 referred to themselves as injured by their vigorous training. Of the 39 deaths, 23 per cent. were ascribed to chest affections and 7.4 per cent. to cardiac disorders. This shows the mortality from chest diseases among the oarsmen to be about 15 per cent. less than the number of deaths from the same causes among the general male population between the ages of twenty and sixty. The deaths among the oarsmen from heart affections, however, was a little in excess of that of the general population from the same disorders. This slightly unfavorable showing may have been due to the small number of observations, or to the fact that the oarsmen may have acquired their cardiac trouble long after they ceased rowing. The absence of all data as to the condition of these men before and after their college training renders any conclusions futile as to the local and constitutional effects of rowing, except in a negative way.

---

[2] Dr. E. H. Bradford, of Boston, a few years later arrived at similar conclusions regarding Harvard oarsmen.

It seems to me reasonable to admit that athletes are endowed by nature with a stronger heart and lungs and a better organism throughout than are possessed by most mortals. The exercises in which they excel are the ones that we prescribe for those persons whose heart and muscles we wish to strengthen and invigorate. Does not the work done or the feat accomplished presuppose an organism equal to it? This is my conviction, and I have yet to learn of a single case where a sound heart in a sound organism has been injured from the practice of athletic exercises under proper conditions and capable supervision. The practice of physical exercises does not insure a man against death, and the fact of one having died from heart disease or consumption who had formerly engaged in athletic pursuits is not proof positive that the exercises caused his death, any more than many other things that may have occupied his attention during life.

Before any person can make an authoritative statement as to the effect of athletics upon any individual, he must know his condition previous to the time of his beginning to practice. When this is done in a number of cases it will be found that the practice of athletics pure and simple rather lessens than increases one's chances of acquiring either heart or lung trouble. This brings me to a consideration of the condition of many men who aspire to be athletes, and who often enter athletic contests.

The great prominence given to athletics at the present day by the press and public stimulates a great many men to take exercise who would never do it from a sense of duty or as a means of development. The physical condition of these men represents very fairly the average physical condition of the masses. When it is considered that the average age at death is only about thirty-three years, that nearly 40 per cent. of the total number of deaths result from some form of lung or heart disease, and that the great majority of these cases are constitutionally weak in these organs—it will be seen that the average man is not likely to possess the vital material out of which athletes are made. I am informed that over 50 per cent. of the men who apply for admission to the army and navy, and to the police force of two of our large cities, are rejected on the ground of physical incompetency. And yet men of much less physical stamina think they are qualified to enter athletic contests. The great mass of these aspirants for athletic honors are weeded out in the preliminary struggles with their companions or play-fellows. Those that are successful in these local encounters are spurred on by admiring comrades or club-mates to greater efforts. They become fired with an ambition to break a record, win a prize, or gain distinction at any hazard, and they begin to train.

I shall not at this time undertake to describe the course of training as it is pursued by the larger portion of these young aspirants; let it suffice to say that it begins and ends with a continuous series of trials and tests in which one part of the organism is forced into competition with another, until finally the weaker part gives way, and the efficiency of the individual for any more great efforts has been permanently impaired. These are the men who bring athletics into bad repute. If they had been subjected to a physical examination, they would have been advised not to compete in violent exercises, and the pulmonary, cardiac, or constitutional weakness then discovered would have been traced to its true cause, and not attributed later to excesses in athletics. Back of most of the cardiac disturbances which are ascribed to over-exertion in sport will be found an early history of rheumatism, scarlet-fever, degenerative trouble of the kidneys, or the lingering effects of some other disease. Dissipation in early life, excessive use of alcohol and tobacco, vitiated air, poor food, sedentary employment, want of regular exercise, tight clothing, cramped positions, over-study, loss of sleep and too rapid growth—all these tend to weaken and derange the heart's action and impair its ability for great efforts. Among college students the great majority fail to come up to the athletic standard because they have never had any systematic exercise or physical training. Most of them have devoted the period in which the greatest growth and development usually take place to study in preparation for college. Consequently they enter trained in mind, but not in body, for the ordeals of college life. The pitiful wail of the captain of the crew or the captain of the "eleven" for "better men," is not all a myth, but represents a serious want of stamina and brawn in our national physique. Probably the finest appearing young men physically of any class in the United States may be found in our colleges and higher institutions of learning, and yet the average physical condition of these young men is far from gratifying. The flat chest and drooping head are still the rule and not the exception. While the hollow backs, emaciated limbs, flabby muscles, and feeble circulations are sufficiently numerous to refute any criticism that physical training in our schools and colleges is being carried to excess.

Most of these young men come from fine families, with a good inheritance, and are well nurtured, but their body-building has been neglected, and they come to college poorly developed physically. Many of this class try for positions on the athletic teams. Not a few are rejected by the physical examiner because they are not in a condition to endure the strain of an athletic contest. They are not diseased, but simply lack good physical tone, and need time and less trying exercises at first to properly prepare them for the arduous efforts of a football or rowing season. If these men are not pushed too hard at first, but are allowed to mature slowly, they often make the finest athletes before the completion of the college course. If, on the other hand, they plunge in at once, they are likely to be used up in the preliminary practice, or to soon find the pace "too fast" or the work "too hard," and to be forced to give way to more vigorous and hardy competitors.

Another class of college men whom I have known to be injured by athletic contests, is composed of those who have overworked both mentally and physically while preparing for college or during their college course. Some of these men inherit good constitutions but poor fortunes, and in their efforts to get an education they have often worked with their muscles during the day and with their brains at night. Others, in hopes to save time and expense, have cut short their hours of sleep and reduced the quality and quantity of their food. Both classes have burned the candle at both ends and have taken something from their stock of vitality that has never been returned. Still another class have been ambitious to stand well in their studies, be social leaders, and excel in athletics at the same time, while a few have engaged in teaching private pupils, or in tutoring as it is termed, in addition to their athletics and regular college studies. Some men are so well constituted that they can stand this double strain for a while, but sooner or later they give way, and—if they happen to be prominent in athletics—athletics alone are too often made responsible for their breakdown.

Admitting that the general practice of athletics by all classes under the present highly competitive system is likely to result in injury to some, let us consider briefly a few of the precautions that are necessary to observe in order to reduce the risk to a minimum. The young man who aspires to be an athlete, should have himself examined and tested by a good physician before beginning to practice athletics, and get his written opinion as to the advisability of entering athletic contests. I say *written opinion*, because I have learned from experience that some physicians are very free with their spoken opinions where they are not expected to assume any responsibility. The best adviser is likely to be the young man's family physician, for he will be familiar with his history, and constitutional peculiarities. Second, it is best not to engage in violent exercise until one is at least eighteen years of age, and in most cases it would be better for him to postpone his athletic attempts until he is twenty. The heart and lungs do not get their full development until after this age, and if forced in their work before this time, they will be likely to be impaired in their later efficiency and to retard the final development of the whole body. The tables prepared by Drs. Beneké[3] and Boyd[4] on this subject should be in the hands of every practicing physician and schoolmaster, for it is in the preparatory schools, that are now fostering highly competitive exercises among growing boys and not physical training in its best sense, that the evils following over-exertion are most likely to occur.

A third source of cardiac disturbance, in connection with exercise, is the wearing of tight clothing. In an article on "The Physical Training of Women" by the writer, published in *Scribner's Magazine*, February, 1889, it was shown that the average heart-impulse before and after the same exercise with and without corsets was increased eight beats a minute by contracting the waist from twenty-five to twenty-four inches. A great deal of the heart trouble experienced by young soldiers can be traced to the physical exertion made while wearing the "regulation uniform," and the exhibitions of complete prostration from the practice of football, so often seen early in the season, would not be so frequent if the jackets were loosened to make room for the increased expansion of the chest and respiratory organs.

Fourth, the strain on the heart and blood vessels is greatly relieved in violent exercises, through getting into a profuse perspiration. The great test of condition is ability to do a good athletic performance on a cold, rainy, or windy day. Many a man has broken down under these conditions who could have stood the same amount of muscular work on a warm day, It is always advisable, therefore, to get the blood freely circulating, and to be thoroughly warmed throughout from exercise or rubbing, before making any effort that is to test the heart and lungs severely.

---

[3] Beneké, *Ueber das Volumen des Herzen und die Weite der Arteria in den verschiedenen Lebensaltern*, 1879.

[4] *Weight of Internal Organs*, by Dr. Boyd. Royal Society *Transactions*, February 28, 1861.

Fifth, the habit which some athletes have of eating and drinking before a contest to give them strength and staying power, as they term it, cannot be defended on good physiological grounds. No food can be absorbed into the system inside of thirty minutes, and most foods require three and four hours for digestion. The only purpose that eating can serve is to allay nervous excitement in certain individuals. The slightest fullness or distention of the stomach, on the other hand, interferes with the action of the heart and lungs, and, by imposing extra work upon them, renders the exercise more fatiguing. A person should not undertake to make his greatest physical effort within three hours after a meal, and that meal should not be a very hearty one.

Sixth, the question is often asked as to the advisability of a person's taking a cold bath when very warm from exercise. A vigorous athletic fellow, however warm, can usually take a cold bath with impunity, unless he is tired. As he is most likely to be tired after coming in from the football field, a hard row on the river, or a long siege at tennis, a cold bath at such a time—whether a shower, tub, or plunge—is, in my opinion, not safe for the average athlete, to say nothing of the average man. The shock to the system that follows this practice is fully as exhausting as prolonging the practice of the violent exercise would have been. I have seen more symptoms of temporary cardiac failure following cold bathing after severe exercise than from any other cause. The question has often occurred to me whether our young men do not lose by excessive bathing and the profuse use of strong alkaline soaps, something which the ancients preserved by their practices of oiling and anointing.

Seventh, it is a matter of common observation that persons not accustomed to exercise cannot take the simplest run or row without getting greatly "out of breath," as it is termed. The difference in the heart's action is sometimes as much as thirty beats to the minute for the same amount of physical work in the same person when not accustomed to exercise and when in good training. This plainly shows how much careful preparation has to do with relieving the distress so often experienced by beginners at any arduous exercise.

It is a want of good physical tone on the part of the great majority of persons that makes them look with so much compassion on, and often condemn so bitterly, the vigorous and dashing sport of a trained athlete. One should not judge the effect of athletics from the standpoint of a semi-invalid.

In my opinion the grand possibilities opened up to the human race, both mentally and physically, by the achievements of men in splendid physical condition, should furnish a source of inspiration to us all. Although the trained athlete can greatly excel the average man in any exhibition of power and endurance, still it must be borne in mind that there is a limit to human capability, and this limit is determined ultimately by the power of the heart, though the condition of all the other organs is correlated. Every pound of energy expended in work, either of mind or body, must be made good by food, rest, and sleep. Hence the fundamental requisites of a man of power are to be a good eater and a good sleeper. The importance of these acquirements to Americans is not well enough understood. Plato tells us that the athletes of ancient Greece were a stupid set of fellows, lounging away their time in eating and sleeping, and yet, if their monuments are correct, they have left us a set of athletic records that have never been equaled. It has never seemed to occur to us that occasional sluggishness or frequent intervals of total inactivity are essential requisites for great trials of speed, strength, or endurance. One of the most energetic men whom it is my pleasure to know, undresses and goes to bed for an hour in the middle of the day, and no one is allowed to arouse him from his slumber until the hour has expired; and yet this same man turns off more work than two ordinary men, though he takes time for exercise, and never misses an engagement.

The profound stupor that frequently comes over a hard-worked athlete, as he sits bolt upright and tries conscientiously to get out his mental task, will not be likely to secure for him honorable mention in any of his studies, but it will certainly insure him from nervous exhaustion or a general physical breakdown. As I have previously intimated in this article, it is not athletics alone that are likely to injure our young men, but athletics plus dissipation in some cases, plus mental over-application in others. It is not over-study alone in our schools that causes so much feebleness in health, but too much study plus too much society and too enervating amusements. So it is in business; it is not the hard work of the day alone that is increasing the amount of heart and nervous disease in our large cities; it is the work of the day plus the work of the night, that burns the candle at both ends and proves so speedily exhausting.

DUDLEY A. SARGENT.

HEMENWAY GYMNASIUM,
CAMBRIDGE, MASS.

V.

DISCUSSIONS.

THE SEVEN LIBERAL ARTS.

The Greeks originally recognized two branches of liberal education[1] (1) Gymnastics, for the body, and (2) Music, for the soul. Out of music grew, in process of time, not only the so-called Liberal Arts, that is, the arts that go to constitute the education of every freeman, but also what was regarded as a superfluous luxury (περιττή), Philosophy. It is the purpose of this paper to trace, as far as possible, this gradual development.

In doing so, one must bear in mind that originally the term "Music" covered, not only what we call music, but also poetry, and that poetry was the vehicle of all the science that then was. The Homeric *aoidos* knows the "works of gods and men." Strictly speaking, therefore, it was out of music and poetry that all the arts and sciences grew. The first step in this direction was taken when Letters were introduced, that is, about the first Olympiad.[2] But it was long before Letters were regarded as a separate branch of education; they were simply a means of recording poetry. Even as late as the time of Plato, Letters are still usually included under Music. In Aristotle, they are recognized as a separate branch. It follows from this that, when we find Greek writers confining soul-education to Music, or Music and Letters, we must not conclude that these signify only playing and singing, reading and writing. Socrates was saying nothing new or paradoxical, when he affirmed that Philosophy was the "highest music." The Pythagoreans had said the same thing before him, and there can be no doubt that Pythagoras himself included under Music (1) Letters, (2) Arithmetic, (3) Geometry, (4) Astronomy, (5) Music, in our sense, and (6) Philosophy (a term invented by him). Plato did the same thing. He speaks of "the true

---

[1] It must be borne in mind that the Greek τέχνη, art, corresponds almost exactly to what we mean by "science." It is defined by Aristotle, *Metaph.*, A. 1.; 981 a 5 sqq. Schwegler, in his translation of the *Metaphysics*, renders it by *Wissenschaft*. Ἐπιστήμη is our "philosophy."

[2] See Jebb, *Homer*, pp. 110 sqq.

Muse that is accompanied with truth (λόγων) and philosophy." But in his time "Music" was used in two senses, a broad one, in which it included the whole of intellectual education, and a narrow one, in which it is confined to music in the modern sense. It is in this latter sense that it is used by Aristotle, when he makes the intellectual branches of school education (1) Letters, (2) Music, and (3) Drawing. Philosophy he places in a higher grade. Having distinguished Letters from Music, it is natural enough that he should assign to the former the branches which Pythagoras had included under the latter. His literary scheme appears to be (1) Grammar, (2) Rhetoric, (3) Dialectic, (4) Arithmetic, (5) Geometry, (6) Astronomy. Add Music, and we have exactly the Seven Liberal Arts; but, as Drawing must also be added, it is clear that there was, as yet, no thought of fixing definitely the number seven. That Drawing was for a long time part of the school curriculum is rendered clear by a passage in a work of Teles (B. C. 260) quoted by Stobæus (xcviii., 72), in which it is said that boys study (1) Letters, (2) Music, (3) Drawing; young men, (4) Arithmetic and (5) Geometry. The last two branches are here already distinguished from Letters; but we cannot be sure that the list is intended to be exhaustive. What is especially noticeable in the list of Teles is, that it draws a clear distinction between the lower and higher studies, a distinction which foreshadows the *Trivium* and *Quadrivium* of later times.[3]

Philosophy, or the highest education, Aristotle divided into (1) Theory and (2) Practice. Theory he subdivided into (a) Theology, First Philosophy, or Wisdom, called later Metaphysics, the science of the Unchangeable, and (b) Physics, the science of the Changeable; Practice into (a) Ethics, including Politics and Œconomics, and (b) Poetics or Æsthetics.

After Teles we hear little of the Greek school curriculum until about the Christian era. Meanwhile, the Romans, having acquired a smattering of Greek learning, began to draw up a scheme of studies suitable for themselves. It is noticeable that in this scheme there is no such distinction as the Greeks drew between liberal (*ελευϑέριαι, ἐγκύκλιοι, λογικαί*) and illiberal (*βάναυσοι*) arts.[4] As early as the first half of the second century B. C., Cato the Censor wrote a series of manuals for his son on (1) Ethics, (2) Rhetoric, (3) Medicine; (4) Military Science, (5) Farming, (6) Law. It is very significant that the only Greek school-study which appears here is Rhetoric ; this the Romans, and notably Cato himself, always studied with great care for practical purposes. It seems that Cato, in order to resist the inroads of Greek education and manners, which he felt to be demoralizing, tried to draw up a characteristically Roman curriculum. Greece, however, in a great measure prevailed, and half a century later we find Varro writing upon most of the subjects in the Greek curriculum : Grammar, Rhetoric, Dialectic, Arithmetic, Geometry, Astronomy, Music, Philosophy, besides many others. He wrote a treatise in nine books, called *Disciplinarum Libri.* Ritschl, in his *Quæstiones Varronianæ*[5] tried to show that these "disciplinæ" were the Seven Liberal Arts, *plus* Architecture and Medicine, and Mommsen, in his *Roman History*, has followed him ; but Ritschl himself later changed his opinion. There seems no doubt that (1) Grammar, (2) Rhetoric, (3) Dialectic (4) Music, (5) Geometry, and (6) Architecture were treated in the work : what the rest were, we can only guess.[6] There is no ground for the assertion that the Seven Liberal Arts were obtained by dropping Architecture and Medicine from Varro's list. It must have been about the time of Varro, if not earlier, that Roman education came to be divided into three grades, called respectively (1) Grammar, (2) Rhetoric, and (3) Philosophy, the last falling to the lot of but few persons. Of course "Grammar" now came to have a very extensive meaning, as we can see from the definition of it given by Dionysius Thrax, in his grammar, prepared apparently for Roman use (B. C. 90). In the Scholia to that work (I am unable to fix their date), we find the Liberal Arts enumerated as (1) Astronomy, (2) Geometry, (3) Music, (4) Philosophy, (5) Medicine, (6) Grammar, (7) Rhetoric.[7]

---

[3] It is a pity that we cannot fix the date of the so-called *Picture* of Cebes (Κέβητος Πίναξ). In this we find enumerated the votaries of False Learning, (1) Poets, (2) Rhetoricians, (3) Dialecticians, (4) Musicians, (5) Arithmeticians, (6) Geometricians, (7) Astrologers (if we count Poets=Grammarians, we have exactly the Seven Liberal Arts), (8) Hedonists, (9) Peripatetics, (10) Critics, "and such others as are like to these." The "Hedonists" (ἡδονικοί) are the Cyrenaics; the "Critics" (κριτικοί) can hardly be the grammarians, though that is usually the meaning of the term in later times. Should we not read κυνικοί? The *Pinax* can hardly be later than 250 B. C.

---

[4] "Liberal" means fit, "illiberal" unfit, for freemen. The sum of the liberal arts was called 'Εγκυκλιοπαιδεία, which we have corrupted into *Encyclopædia.*

[5] Bonn, 1845.

[6] See Boissier, *Étude sur la Vie et les Ouvrages de M. T. Varron*, pp. 332.

But to return to the Greeks. In the works of Philo Judæus, a contemporary of Jesus, we find the encyclic arts frequently referred to, and distinguished from philosophy. The former, he says, are represented by the Egyptian slave Hagar, the latter by Sarah, the lawful wife. One must associate with the arts before he can find philosophy fruitful. In no one passage does Philo give a list of the encyclic arts. In one place we find enumerated (1) Grammar, (2) Geometry, (3) Music, (4) Rhetoric (*De Cherub.*, § 30); in another (1) Grammar, (2) Geometry, (3) "the entire music of encyclic instruction" (*De Agricult.*, § 4); in another (1) Grammar, (2) Music, (3) Geometry, (4) Rhetoric, (5) Dialectic (*De Congressu Quær. Erud. Grat.*, § 5); in another, (1) Grammar, (2) Arithmetic, (3) Geometry, (4) Music, (5) Rhetoric (*De Somniis*, § 35), etc. It would seem that the encyclic arts, according to Philo, were (1) Grammar, (2) Rhetoric, (3) Dialectic, (4) Arithmetic, (5) Geometry, (6) Music. Astronomy appears in none of the lists. Philosophy is divided into (1) Physics, (2) Logic, (3) Ethics (*De Mutat. Nom.*, § 10), a division that was long current.

From what has been adduced I think we may fairly conclude that at the Christian era no definite number had been fixed for the liberal arts either at Athens, Alexandria, or Rome. The list apparently differed in different places. Clearly the Roman programme was quite different from the Greek. Shortly after this era we find Seneca (who died A. D. 65) giving the liberal arts, *liberalia studia*, as (1) Grammar, (2) Music, (3) Geometry, (4) Arithmetic, (5) Astronomy, (*Epist.*, 88). He divides Philosophy into (1) Moral, (2) Natural, (3) Rational, and the last he subdivides into (a) Dialectic and (b) Rhetoric. Above all he places Wisdom, "*Sapientia perfectum bonum est mentis humanæ*" (*Epist.*, 89). Here we see that two of the Seven Liberal Arts are classed under Philosophy. A little later, Quintilian divides all education into (1) Grammar, and (2) Rhetoric, but condescends to allow his young orator to study a little Music, Geometry, and Astronomy.

Turning to the Greeks, we find Sextus Empiricus, who seems to have flourished in Athens and Alexandria toward the end of the second century, writing a great work against the dogmatists or "mathematicians," of whom he finds nine classes, corresponding to six arts and three sciences of philosophy. The arts are (1) Grammar, (2) Rhetoric, (3) Geometry, (4) Arithmetic, (5) Astronomy, (6) Music: the sciences, (1) Logic, (2) Physics, (3) Ethics. We are now not far from the Seven Liberal Arts; still we have not reached them.

---

[7] See Bekker's *Anecdota Græca*, ii., 655.

There is not, I think, any noteworthy list of the liberal arts to be found in any ancient author after Sextus, till we come to St. Augustine. In his *Retractiones*, written about 425, he tells us (I. 6) that in his youth he undertook to write *Disciplinarum Libri* (the exact title of Varro's work!), that he finished the book on (1) Grammar, wrote six volumes on (2) Music, and made a beginning with *other five* disciplines, (3) Dialectic, (4) Rhetoric, (5) Geometry, (6) Arithmetic, (7) Philosophy. It has frequently been assumed that we have here, for the first time, the Seven Liberal Arts definitely fixed; but there is nothing whatever in the passage to justify this assumption. The author does not say "*the* other five disciplines," but merely "other five." Among these five, moreover, is named Philosophy, which, though certainly a "discipline," was never, so far as I can discover, called an art, liberal or otherwise. There is not the smallest reason for tracing back the Seven Liberal Arts to St. Augustine, who surely was incapable of any such playing with numbers. He does not, indeed, recognize the "Seven."

It is in the fantastic and superficial work of Martianus Capella, a heathen contemporary of Augustine's, that they first make their appearance, and even then no stress is laid upon their number. They are (1) Grammar, (2) Dialectic, (3) Rhetoric, (4) Geometry, (5) Arithmetic, (6) Astronomy, (7) Music. These, no doubt, were the branches taught in the better schools of the Roman Empire in the fourth and fifth centuries, when, on the whole, the Greek liberal curriculum had conquered the Roman rhetorical one. There is not the slightest ground for supposing that Capella had anything to do with fixing the curriculum which he celebrates. His work is a wretched production, sufficiently characterized by its title, *The Wedding of Mercury and Philology*. He wrote about seven arts because he found seven to write about. Attention was first called to the *number* of the arts, and a mystical meaning attached to it by the Christian Senator, Cassiodorus (480–575) in his *De Artibus et Disciplinis Liberalium Litterarum.* He finds it written in Prov. IX. 1, that "Wisdom hath builded her house. She hath hewn out her seven pillars." He concludes that the Seven Liberal Arts are the seven pillars of the house of Wisdom. They correspond also to the days of the week, which are also seven. It is to be observed that he distinguishes the "Arts" from the "Disciplines," or, as they said later, the *Trivium* from the *Quadrivium*. The pious notion of Cassiodorus was worked out by Isidore of Seville (died 636) in his *Etymologiæ*, and by Alcuin (died 804) in his *Grammatica*. Of course, as soon as the number of the arts came to be regarded as fixed by Scripture authority, it became as familiar a fact as the number of the planets or of the days of the week, or indeed, as the number of the elements. About A. D. 820, Hrabanus Maurus (776–856), a pupil of Alcuin's, wrote a work, *De Clericorum Institutione*, in which the phrase *Septem Liberales Artes* is said to occur for the first time. About the same date Theodulfus wrote his allegorical poem *De Septem Liberalibus in quadam Pictura Descriptis*.[8]

The Liberal Studies after St. Augustine did not include Philosophy, which rested upon the Seven Arts, as upon "seven pillars," and was usually divided into (1) Physical, (2) Logical, (3) Ethical.[9] After a time Philosophy came to be an all-embracing term. In a commentary on the *Timæus* of Plato, assigned by Cousin to the twelfth century, we find the following scheme:

- PHILOSOPHY
  - Practical
    - Ethics.
    - Economics.
    - Politics.
  - Theoretical
    - Theology.
    - Mathematics
      - Arithmetic
      - Music
      - Geometry
      - Astronomy
      - =Quadrivium.
    - Physics.

The author expressly says that "Mathematica quadrivium continet"; but he plainly does not include the *Trivium* under Philosophy. This, however, was done in the following century. In the *Itinerarium Mentis in Deum* of St. Bonaventura (1221–74) we find the following arrangements:

---

[8] I am indebted for a number of these facts to an article by Prof. A. F. West, in the *Princeton College Bulletin*, November, 1890.

[9] These terms, which we still find in Isidore and Hrabanus Maurus, are afterwards, in the thirteenth century, replaced by their Latin equivalents: Natural, Rational, and Moral. In the case of the second, this caused considerable confusion, inasmuch as when it ceased to be used as "rational," it took the place of "dialectic."

PHILOSOPHY	Natural	Metaphysics—essence: leads to First Principle=Father.
		Mathematics—numbers, figures: leads to Image=Son.
		Physics—natures, powers, diffusions: leads to Gift of Holy Spirit.
	Rational	Grammar—power of expression=Father.
		Logic—perspicuity in argument=Son.
		Rhetoric—skill in persuading=Holy Spirit.
	Moral	Monastics—innascibility of Father.
		Œconomics—familiarity of Son.
		Politics—liberality of Holy Spirit.

Here we have the *Trivium*, under the division "Rational," while the *Quadrivium* must still be included under "Mathematics." In both cases we get nine sciences or disciplines, and the number was apparently chosen, because it is the square of three, the number of the Holy Trinity. In the latter case this was certainly true. Speaking of the primary divisions of Philosophy, the Saint says: "The first treats of the cause of being, and therefore leads to the Power of the Father; the second of the ground of understanding, and therefore leads to the Wisdom of the Word; the third to the order of living, and therefore leads to the goodness of the Holy Spirit."

Dante in his *Convivio* (II, 14, 15) gives the following scheme based upon the "ten heavens," nine of which are moved by angels or intelligences, while the last rests in God.

LIBERAL ARTS	Trivium	Grammar	Moon	Angels.
		Dialectic	Mercury	Archangels.
		Rhetoric	Venus	Thrones.
	Quadrivium	Arithmetic	Sun	Dominions.
		Music	Mars	Virtues.
		Geometry	Jupiter	Principalities.
		Astrology	Saturn	Powers.
PHILOSOPHY		Physics and Metaphysics	Starry Heaven	Cherubim.
		Moral Science	Crystalline Heaven	Seraphim.[10]
		Theology	Empyrean	God.

In Dante are summed up the ancient and mediæval systems of education.

THOMAS DAVIDSON.

NEW YORK.

---

[10] In the XXVIIIth Canto of the Paradise, these angelic powers are arranged somewhat differently, in deference to Dionysius Areopagita and St. Bernard.

OBJECTIVE METHODS OF TEACHING ELEMENTARY READING.

Inspector Hughes has given us a very comprehensive discussion of the principles of reading,[1] and by so doing, has laid the basis of further discussion. His conclusions are (1) It is unpedagogical to use objects in teaching reading; (2) That oral language, which a child has already learned, is fully sufficient to bring about those acts of association necessary for the functioning of a word. The arguments by which he seeks to prove these propositions may be easily referred to, and need not be repeated here. It is proposed to examine the evidence which Inspector Hughes presents.

1. Although oral and printed language are two integers or factors in the same language, every printed word, not recognized by a child, is absolutely NEW to the child.

2. An oral word, and its corresponding printed word, cannot be called IDENTICAL, for they are two entirely distinct causes of the same conscious effect.

3. The statement that no new thought can be presented by printed language may be fairly questioned. The words of a sentence certainly may bring into a child's mind a new thought. This no one will question. Mr. Hughes' point is that such sentences should never be used in teaching a child to read. Mr. Hughes says "It will also be necessary to explain to him the meaning and use of some of the words in his reading lesson." Explaining the meaning and use, means nothing more nor less than the awakening of those conscious activities which the words are designed to recall. Every reader of a language is constantly finding new words which he does not recognize. He immediately seeks from the dictionary or other sources the meaning of the word, that is, the recognition of the word depends upon the conscious activities which must be aroused before the word performs its function. Such words are certainly new to the learner, and the conceptions which they recall may also be new. For instance, I see the words *ornythorhynchus platypus;* I look in an illustrated dictionary, and the picture of the animal arouses a new conception. The plain inference from Mr. Hughes' premises is that pictures should never be used in teaching reading. A person passes

---

[1] EDUCATIONAL REVIEW, II, 162–168.

through a menagerie and sees an unfamiliar animal and immediately looks at the name, then seeks to pronounce the name. In this case, the new conception, the printed word follows, and then the oral word. This is a common experience and is certainly not unpedagogical.

4. The proposition that oral language is natural and printed language is artificial, cannot be admitted without further investigation. Inspector Hughes should show the technical differences between natural and artificial, in these two cases, which, according to his statement, form an identical language. Every oral word was invented by man and is made by the use of the vocal organs. So far as the invention is concerned, the same can be said of the printed language, there being a difference of course in the means of expression. The question remains, what is the essential difference between natural and artificial; that is, between the oral word and the printed word? With speaking children, the oral language precedes the written language, but that does not prove that the oral word is natural, *i. e.*, not made by man, and that the written word is artificial, *i. e.*, made by man.

5. The statement that little children, not deaf, have no direct training in learning to hear language, may surprise many mothers who have followed their little ones from the time the spoken word is recognized or heard until the child is master of the main idioms of the language. Certainly teaching a child to hear language and to talk is of absorbing interest to every parent. In what sense it may be said that a child has no "direct training," in learning to hear language, certainly needs further explanation. If I am not very much mistaken, I have often heard a mother say "doll," "dog," "cat," "mamma" and "papa" repeatedly, while her children were absorbed with conscious effects corresponding to these objects.

Yet the lack of conscious effort in learning oral language, and the conscious process of learning visible language, may be accounted for by the difference in the methods, and we may learn, some day, that the mother's method, by which the child learns oral words unconsciously, is to be preferred to all other methods; that is, there may be a method yet to be discovered, by which a child will learn written words without conscious effort.

6. Inspector Hughes seems to confound expression with

the process of hearing and reading. In hearing language, and also in reading, the words recall the thought, that is, the words in both cases precede the idea. Talking or speaking is the expression of thought; its correspondence, hearing language, is thinking by means of oral words. Writing is the expression of thought; reading, its correspondence, is thinking by means of printed words, and in scientific discussion should be kept entirely separate as two distinct processes.

His further statement that "the teacher's first aim should be to make word-recognition automatic," may be granted if word-recognition means that the printed word arouses, on presentation, the appropriate conscious activities which the word was designed to recall; but the problem of the most economical way to bring about word-recognition, so far as Mr. Hughes' discussion is concerned, still remains an open question.

The proposition that the oral word is an actual necessity in learning the printed word, may be met by the well-known fact that deaf children learn to read visible language as easily as those children who have full use of their organs of hearing. Inspector Hughes has not shown us clearly why it is unpedagogical, or why it is opposed to psychological laws, to present objects when a word is being taught, in order to arouse in consciousness the conscious activities which a printed word is designed to recall.

Pictures have been used to teach printed words since the time of Comenius, and perhaps much earlier. The direct inference of the argument presented is that pictures should never be used for this purpose. If pictures are of pedagogical use in teaching reading, then certainly objects are of the same use. If the dictionary is to be used in finding the meaning of a word, a shorter and more direct way, with little children, is found by showing the object which brings into consciousness the meaning of the word.

FRANCIS W. PARKER.

COOK COUNTY NORMAL SCHOOL,
CHICAGO, ILL.

PRACTICE TEACHING IN NORMAL SCHOOLS.—III.

While there will never be wanting individuals who like to speak of teaching as a science, and to claim for its processes and their results a high degree of precision and ripeness, it is generally conceded that such a claim is premature and that nothing is gained practically by the attempt to force into the discussion of educational questions much in the way of scientific axioms and terminology. Among candid teachers there is a general willingness to let their art stand upon about the same footing as the practice of medicine and the arts of war and of navigation, wherein even the largest and most accurate knowledge must be supplemented at every step by skill and address that come only by experience. Even in the domain of the more obvious physical laws, our widest learning is as yet far enough from anything like mastery of their extent and relations. It is said of the late Professor Parker Cleveland, a man imbued with the genuine scientific spirit, if ever there was one, that when he came to the climax of an experiment before his class, he would pause and say with impressive humility, "Now, if we have complied with all the conditions, we may expect, etc., etc." If such modesty and caution are becoming in one who is dealing only with the orderly and familiar phases of external nature, there would seem to be little excuse for assurance and loftiness when we have to do with the complexities and anomalies of the human being, especially when it is remembered that the teacher as well as the pupil is human.

In any undertaking where the results to be brought about depend upon manifold and variable conditions that cannot all be foreseen, making necessary many readjustments of plan and method as the process goes on, it is evident that the training best calculated to develop the qualities that insure success must be of a highly practical character. The work of the teacher is undoubtedly of this sort; and we find, as a matter of fact, that practice, of one kind or another, is made a part of nearly all normal courses, whether long or short. Indeed, the clinic and the hospital are scarcely regarded as more indispensable to the young physician than the practice-school to the normal student.

With some variations, practice-teaching falls under three types: first, the giving of lessons to classmates; second, the giving of lessons to children in practice or model schools; third, teaching as assistants or apprentices in ordinary graded schools. Perhaps the most complete system would be one which should make use of all three of these modes in the order named; but this would take too much time.

Lessons, or rather lesson-forms exhibited to classmates, have value as affording opportunity for logical arrangement of topics and for a certain amount of passing criticism and discussion ; but such exercises hardly deserve the name of teaching, in the proper sense of the word, for the subject-matter is generally well known to the class, and there is consequently on their part no learning, on which genuine teaching must, as it were, subsist. A great part of all real instruction is the constant testing of the pupil's mind as the process goes on, to ascertain how far the thing taught is being rightly apprehended, as the sailor when approaching unfamiliar land must take frequent soundings to note the shoaling of the water as he nears the shore. Failure in this is one of the surest marks of deficiency in faculty or in training, and there is really no way of securing it but through actual contact with many different children in many different kinds of lessons. Hence the small advantage of "teaching" those who are the equals of the instructor, and whose minds are therefore in the attitude of criticism rather than that of genuine acquisition. The thing becomes too ridiculous for serious consideration when, as has sometimes been done, the students try to "play children" even to the silly extent of whining and lisping.

Model schools afford the proper material for the pupil-teachers to work upon, but there is a drawback in the fact that the children in such classes tend to become after a while somewhat over-taught, and that too by almost the same methods and illustrations used over and over again. They grow too knowing and lose the *naïveté* of ordinary school children. A sharp little fellow in such a class once tantalized a normal student who was struggling in vain to "develop" a certain point, by saying coolly, "I know the answer you want, but that question won't fetch it." Where the normal class is small in proportion to the size of the model school, this evil is of course lessened. Another defect or limitation of the model school is that it offers so little scope for training the faculty of school management. By its organization the model school is usually under a twofold or threefold oversight, and the common disorders and misbehaviors incident to school life are nipped in the bud, or even in the germ. There are too few of those eddies of mischief which are constantly springing up in remote corners of every schoolroom, and which must be promptly and quietly arrested (as it were with the left hand) without checking the current and momentum of the work in hand. Tact, which Professor Bain says is "a lively and wakeful sense of whatever is going on," cannot be acquired in a school that has been completely subdued to the uses of the novice and is always ready to kneel for anyone to mount. But for precise and effective drill in giving lessons of the typical sort, model classes offer the best possible opportunity. Everything in the way of material, arrangement, and illustration can be decided upon beforehand with definiteness, and the instruction can go forward with regularity and smoothness, unembarrassed by distracting interruptions, so that one feels the appropriateness of calling such classes model schools.

There are those, however, who think that what are called normal methods may be made too prominent in the consciousness of young teachers and may be pursued with undue zeal and exclusiveness, because, as they believe, the "normal" has been sharpened to too fine a point. It has been made to stand for a single and perfectly definite thing and no other. The nature of a growing mind, they say, is such that it cannot be properly nourished upon a diet which is not only highly concentrated, but is, as it were, chemically pure. The best methods of teaching, it is argued, do not always converge as to a mathematical point, because human activities do not so converge, but may lie parallel or may even take divergent lines. Normal methods, therefore, should not end in an apex, but rather in a plane of sufficient extent to correspond with the variations of human nature that fall within normal limits.

Again, the method must not be held too close to the eye, or it will blot out the end it is intended to serve. Emerson says that "learning depends on the learner"; there is always danger that the normal student will come to feel that it depends on the teacher, and especially on the method. The young sportsman in taking aim looks hard at his gun; experience teaches him to fix his eye on the game instead. The same is true in the process of learning any art. The worst enemies of the tyro in teaching are self-consciousness, pride of method and manner, and morbid fear of making mistakes; and one of the urgent and as yet unsolved problems of normal training is how to overcome these. Surely not by excessive criticism, for, although fault-finding may keep down weeds, it tends to produce sterility by chilling the soil of courageous endeavor.

It may thus be concluded that the practice afforded by model schools, though highly serviceable in several directions and admirably fitted to teach practically a part of the teacher's art, is beset with grave difficulties and dangers.

The third type of practice named was apprenticeship. This requires a larger field, a more complicated adjustment of conditions, and its results are less definite and measurable. Where the normal school is located in a good-sized town, an arrangement can be made with the public-school authorities whereby normal students may be singly assigned as assistants to regular teachers of competent ability and may take part for longer or shorter periods in the instruction and management of real on-going schools such as they will soon have to take charge of themselves. The following conditions should be regarded as indispensable: there must be cordial co-operation on the part of those in authority; the apprentices must serve without pay, and in strict subordination and loyalty to the regular teachers, and for a term long enough in each school or grade to become real assistants; they must be under the constant oversight of the principal or some highly competent assistant of the normal school, and must retain their connection with it as pupils but be excused from its ordinary duties. The apprenticeship should come at a time when the students are well advanced in their normal work, but should not be deferred to the very end of it; a term or two of instruction afterward is useful to digest their experience.

An early lesson taught by this sort of practice is one of the most important and salutary, namely, that the apprentice exists for the school, not the school for the apprentice; and this is enforced with an emphasis not easily forgotten. At the same time there comes prominently into view the personality of the pupils and the expedients necessary to be used in modifying and adapting instruction and management to suit a wide range of individual capacities and needs. This is the very core of the apprenticeship, as it is of the whole art of school-teaching. Perhaps the very first thing given the apprentice to do may be to take a dull or exceptional child who has fallen behind his class, and try to bring him up to grade. She soon discovers that regular lesson-giving is only one among the many duties of a teacher; that the mind of a child is not so simple a thing as she thought it was; that there is in any large body of children a current and movement that never ceases, and that is therefore not to be stopped but to be directed ; that disorder and mischief are more successfully met by diversion than by opposing force ; that the lives which children lead out of school often throw the strongest light upon their behavior in school, and must therefore be sedulously inquired into and studied ; and finally she may learn that Professor Bain is not far wrong when he says that the teacher " is not everybody." In the meantime, if she had capacity to begin with, she has gained power. Her step, her voice, even the expression of her countenance has taken on a degree of modest dignity and force. She takes the initiative more readily and easily. She listens better and shows less consciousness of self. She tells you of interesting children in her school, and finds the days too short and too few for what she wants to undertake in the way of investigations and experiments.

This is no fancy sketch ; it is based strictly upon facts of experience. But, as has been said, in order to get such results a most carefully adjusted plan must be followed and constant vigilance exercised.

The defects of the system are, first; that it plunges the student into too many difficulties at once and is apt to confuse her first efforts ; and secondly, that when a degree of success has been reached that may be called passable, it is hard to raise that to an ideal pitch. These are serious drawbacks, but they are believed by those who have had most experience of the system to be more than made up for by many advantages like those above enumerated, which are not to be secured in so great a degree by any other scheme of practice.

It is not unlikely that the difference between apprenticeship and model-school practice corresponds to a real difference of view on the part of teachers of normal schools as to the main object to be sought by practice generally, a difference which may be fundamental and not to be fully reconciled, amounting in fact to two distinct theories of teaching. Perhaps it is the question whether the chief emphasis should be laid upon scope or upon precision. It may be that there are educators who by their mental temperament cannot regard a departure from the most precise and rigid " normal method," as anything less than dangerous heresy tending directly to pedagogical skepticism and perhaps atheism ; while, on the other hand, there may be an equally intelligent and conscientious class of teachers who look upon the former as altogether creed-bound, strait-laced, and narrow. So far as this may be the case, there would seem to be no way but for the two systems of practice to go on side by side, with as much mutual toleration as they can command, and with a final appeal in common to the results of their work.

E. H. RUSSELL.

STATE NORMAL SCHOOL,
WORCESTER, MASS.

CITY SCHOOL SUPERVISION.—III.

Superintendents of schools in years past used to belong to what Agassiz was in the habit of calling, in biology, a "comprehensive type." In recent years this "type" has gradually and slowly differentiated, in highly organized communities, into five distinct species: janitors, schoolhouse agents, purchasing agents, clerks of school boards, and directors of education. In communities of low social organization, and in such as are suffering from "arrested development," these species have not all yet distinctly appeared; while the janitor is fully evolved, the other four species still constitute a sort of sub-comprehensive type, commonly designated by the term "superintendent of schools." Hence it happens that, in communities which are but imperfectly developed this "superintendent of schools," while he must have partly the characteristics belonging to each of the last four species, has usually differentiated somewhat more fully in the direction of some one of them, *i. e.*, he is predominantly either a schoolhouse agent, looking after school buildings, systems of heating and ventilating, etc.; or he is a purchasing agent, buying the books and supplies for the schools, distributing them, and keeping the accounts of the board; or he is a clerk of the board, keeping the records, compiling statistics and writing statistical reports; or he is a person of special training in the science and art of education, and is the pedagogical expert and adviser of the board and the director of the educational work of the schools. It will not be many years, at the present rate of educational progress, until the law of natural selection will have fully developed all these anomalous forms of pedagogic "life" into distinct species, when school boards will no longer pay the salary of an educational expert to a schoolhouse agent or a clerk, simply because he happens to be called by the generic name "superintendent of schools." It is to be hoped at least, too, that the environments of this rather indefinite office may everywhere be such, in the near future, that the political and the wire-pulling instincts of the "superintendent" may become "rudimentary organs," and that the law of natural selection may develop the pedagogical instinct far more than it has thus far done.

To drop the figure, I think I am safe in saying that school supervision in our best educational centers is rapidly becoming a specialty, and is even becoming recognized as such. The day will soon be past when men of no special training, and men who have never taught a public school in their lives, will be elected to desirable positions as superintendents of schools. I believe, too, that the day is not far distant when such men cannot be elected principals of normal schools. As it is the first business of the lawyer to know law, and of the physician to know medicine, so it will soon be recognized that the first business of the superintendent of schools and of the principal of a normal school is to know that which he is supposed to direct or teach—education. However important it may be for a superintendent of schools to know the world and to know men—more particularly such as are "of the world"—his chief duty is to know pedagogics and be himself an expert in the work which he is to direct. Whatever else he may know, if he does not know this, his usefulness in the future will be extremely limited and his official days may not be lengthened on earth—if he is living in a progressive community.

What then, in short, should be the chief work of the superintendent of schools?

1. He ought to be above all things else a *teacher of pedagogics, a teacher of teachers.* He ought not only to instruct his teachers in the science of education, but he ought to stimulate them to do careful thinking, to put their brains into their work; and he ought to be to them a source of inspiration. Now, no one can arouse thought in others who does not think himself, and no one can "communicate" an enthusiasm to others which he does not have himself. We superintendents are frequently heard to say "As the teacher is so is the school"; it is equally true that as the superintendent is so are the teachers. A live superintendent cannot raise the dead, it is true, but he can bury them and infuse new life into

the living. I believe it was Charles Francis Adams who suggested about ten years ago that the best way to reform schools and teaching was to train expert superintendents. If I may judge by my own failures and by the failures of my brethren—if they will forgive me the repentance that confesses their sins—I am forced to believe that his suggestion was correct.

2. The most effective means of accomplishing this work—of teaching pedagogics—is the teachers' meeting. It cannot be done by giving individual help in the school. The instruction at these meetings ought to cover, at least, educational psychology, the general principles of education, the discussion of the best methods of teaching the various branches of the school curriculum, and a sketch of the history of education. The work at these meetings should not differ materially from that of the department of pedagogics in a college in which such department is well conducted. A superintendent has in fact better facilities for teaching pedagogics effectively than a teacher of pedagogics in a normal school or college. He has mature students, students of experience to whom he can appeal, and the course of study is limited only by his own ability on the one hand and by his tenure of office on the other.

At present expert supervision, in most cities, is secured through special supervisors—supervisors of drawing, of music, of physical culture, of science, of primary schools, of kindergartens, of sewing, and of manual training. If I may judge the feelings of others by my own, I may say that it would be a comfort to the superintendent if the only necessity for these special expert assistants were the fact that he has not sufficient time to do the work himself.

3. The superintendent ought to be the educational adviser of the board, and his counsel ought to command the same respect on their part as that of the city solicitor on a question of law, or that of the city physician on a question of sanitation or the public health. He ought to be held strictly responsible for his advice, just as they are, and for the action of the board based on it. He, and not the school board, ought to be held responsible by the public for the course of study and for the methods of teaching in the schools. If his advice and judgment are found to be untrustworthy, the school board, instead of retaining him and making him simply their clerk

and agent, and assuming the responsibilities themselves which properly belong to him as an expert, ought to dismiss him and secure a person whose judgment they can trust.

4. The superintendent ought also to make it his duty to fashion and shape the educational thought of the community. This he can do through public addresses, through private conferences with thoughtful citizens, and through the daily papers. He ought to make the schools known and popular in the community. In this way he can create the public sentiment which he needs to sustain him at every step he takes in the direction of improving the schools. It is needless to add that in order to do this successfully, he must be a scholar, and must in some measure possess the ability of stating clearly and convincingly his own convictions to others.

5. It is quite true that in many communities the superintendent of schools must take an active interest in the matter of schoolhouse architecture, in the management of the financial affairs of the schools, and in various other matters important to the schools; but he is never justified in allowing his time and strength to be absorbed in these directions to the extent of rendering it impossible for him either to carefully study educational questions or to teach his teachers pedagogics. Nothing can justify ignorance of the law in a lawyer or ignorance of medicine in the physician.

6. What I have thus far said applies especially to our smaller cities and towns. But even in our large cities the only possible substitute for the mechanical courses of study and the other machinery that so embarrassingly hamper good teaching, is competent supervision that will train teachers to use their brains in studying children instead of courses of study to find out what to teach and how to teach it.

7. What has been said applies to all superintendents of teachers' work. In its application to the work of our State superintendents, there is need of considerable modification. The work of these officers is mainly administrative, and they have to deal with educational questions in a general way, especially in their social and economic bearing. They have to study school systems and legislation. A mere educational expert would be apt to take a microscopic instead of a telescopic view of things, and might be a total failure. Executive ability, a knowledge of men and of the ways of reach-

ing them, are of more importance than the expert knowledge of pedagogics for which I have been pleading. The majority of our most successful State superintendents have been men of limited acquaintance with the science of education, but men who could sense the needs of public schools and had the executive ability and tact to secure the legislation that supplies these needs.

THOMAS M. BALLIET.

SUPERINTENDENT OF SCHOOLS,
SPRINGFIELD, MASS.

VI.

FOREIGN CORRESPONDENCE.

CONTEMPORARY EDUCATIONAL THOUGHT IN GREAT BRITAIN.

The most important of recent events in the educational history of England is the enactment, in the last session of Parliament, of a measure which renders primary education almost entirely gratuitious. The Free Schools Act, as it is more generally called, received the royal assent on the 5th of August last, after much discussion in both houses of the legislature.

The cause and the effect of this measure cannot easily be estimated by American readers without taking into account one or two previous facts and considerations. The elementary schools of England and Wales, of which, according to the last report, there were 19,498, containing 29,468 separate departments, with a total number of 4,825,560 scholars, have hitherto derived their income from three sources: the imperial grant, the fees paid by parents, and the local contributions. These local contributions are provided in voluntary and denominational schools, by the subscribers; and in Board-Schools by local rates. All the schools alike are visited by the government inspectors, annually examined, and aided by the grant dispensed from the Treasury; the amount of which is determined partly by the number of the scholars and partly by the efficiency of the school as tested by examination. Now, of these three sources of revenue, the government grant is the largest, and has slowly increased of late years, until it has nearly reached one-half of the total income; the children's fees have amounted to nearly one-third of that income, and the local subscription and rates, though larger in the great towns, have in all not much exceeded one-sixth.

The varied and composite character of the school fund is significant of the peculiar growth and history of the English primary-school system. It is not a symmetrical plan of public instruction, predetermined by the foresight of statesmen and theorists, but the result of a series of compromises and experiments. Until 1846, when the central government began to grant public money in support of education, all the primary schools in England were the product of private benevolence, chiefly in connection with the various Christian churches; and the school revenue was wholly derived from the voluntary subscriptions and from the fees paid by parents. And when the Parliamentary grant was first made it was essentially a grant in aid of local effort; and was administered wholly through the agency of the various voluntary societies—the principal being the National Society for educating the poor in the principles of the Established Church; and the British and Foreign School Society, which, though teaching no catechisms or formularies, was distinctly Christian in its character and attached much importance to Scriptural education. The former Society enlisted the sympathy of the majority of English Churchmen, and the latter was obviously more acceptable to the great body of Nonconformists, and yet was supported by great numbers of Liberal Churchmen. Besides these two great societies, the Wesleyan and the Roman Catholic bodies established schools in connection with their several congregations, and all of them were alike entitled to claim a share of the public grant, on submitting to inspection, and giving evidence of their efficiency. When in 1870 the Education Act accepted, in behalf of the nation, the obligation to make a complete provision for elementary instruction, it left undisturbed the whole field already occupied by the voluntary bodies, and simply required that wherever the existing provision was insufficient, schools were to be created at the cost of the ratepayers; and these, which are known as Board Schools, were also to receive fees from parents and aid from the Parliamentary grant on the same conditions as others.

Thus the three forms of payment may be said to represent the three separate forms of influence under which the school system has been developed. The fact that the parents paid fees gave them a right to choose the schools they preferred, and also in an indirect way to exercise control over the management. The local contributions, whether voluntary or involuntary, were provided by persons of authority and influence on the spot, who formed the local committee of management, and appointed and dismissed the teachers, and superintended the general working of the machine. And the imperial grant, administered through the agency of inspectors appointed by the Crown, served to keep every primary school in England acquainted with the standard of efficiency set up by the authority of Parliament, to secure a qualified teacher and a proper staff in every department, and by proportioning the amount to the efficiency of the school, as tested by examination, to prevent any school from falling below a reasonable standard.

Opinion, however, in England, has long been maturing in favor of such a change as should relieve the parents altogether of their share of contribution, and make the whole cost of primary education, as in America and France, a public charge. Of the two great English parties, the Liberals were the first to advocate this course. They have for several years past contended that since the law now compels children to attend school, it is unreasonable, also, to compel the payment of a fee. They urge that it has been in many cases difficult to obtain the school pence from needy or negligent parents, and that this difficulty has seriously affected the regularity of the children's attendance. Moreover they have avowed that one strong reason for the abolition of the parents' payments was that, by throwing the main burden of maintaining the schools on the whole community, the schools would be more likely to assume a public and national character, and would be freed in a great measure from the domination of local societies and religious parties. Until recently the Conservatives have, on the other hand, resisted the demand for the abolition of fees. They have pointed out that unwillingness on the part of parents to pay is comparatively rare, and that there has been no general demand on the part of parents for relief. The total sum contributed in the form of fees amounted to nearly two millions sterling, and as it was on the whole very cheerfully paid, and paid precisely by the persons who ought to pay it, there seemed to be no necessity to remove this charge from them and add it to the burdens of the taxpayer. Further it was urged that the existing system secured local control and the co-operation of the religious bodies; and that there was great danger of injury to the voluntary schools, if the contributions of the state, and with them the control of the state, became so large as to justify any interference with the local and denominational management to which the supporters of voluntary schools obviously attach considerable importance. These considerations, however, have in the view of the government and their supporters been outweighed by others.

It has become evident to statesmen of both parties of late, that the introduction of the free system was inevitable, or that at least its introduction was merely a question of time. The state of the exchequer fortunately made the present an opportune moment for sparing the needful sum, without imposing any new tax; and the government pointed out to their supporters, some of whom received the proposal with much reluctance, that by effecting the change now, it would be made with less disturbance of the existing compromise between the state and the various classes of schools, than would be likely to arise if it were made subsequently by the other party in the state, many of whose members are in favor of a more completely secularized system, and of superseding the managers of denominational schools by governing bodies popularly elected. The Liberal party received the measure, however, with a cordial welcome, and it was passed through both houses with little difficulty. It proceeds on the assumption that the average fee hitherto paid by parents is threepence per week, or about ten shillings a year, and it enacts that this sum may be paid to the managers of every public elementary school in addition to the present annual grant, on condition that schools in which this or any lower fee was hitherto charged shall be open gratuitously; but that where any higher fee has been charged, the excess only, or the difference between threepence per week and the customary fee, shall, in future, be imposed on the scholars. All the other conditions respecting the management, examinations, and conformity to the rules laid down in the Government Education Code remain unaffected by the new Act, which has been so framed as to involve the minimum of disturbance with existing arrangements, and to arouse the minimum of hostile criticism. It is too early at present to form even a conjectural estimate of the effect which will be produced on the regularity of the scholars' attendance, although a substantial improvement may reasonably be expected when one of the main hindrances to such regularity is removed. Nevertheless, the experience derived from other countries, some of which was collected and issued as a Parliamentary paper for the information of members, is well calculated to remind sanguine persons of both parties that a system of gratuitous instruction does not necessarily secure a high average of regular attendance, unless other influences—

social, moral, and industrial—combine to produce the desired result.

It may be added that the Education Department has taken advantage of the present opportunity to repeat the counsels it had previously given from time to time, respecting the importance of School Savings Banks, and the use which might be made of a school in giving practical lessons in thrift and in insuring the habit of economy among the industrial classes. The moment at which parents are relieved of the necessity of making weekly payments for their children's school fees is obviously one very suitable to suggesting to managers and teachers the way in which the pence thus saved may be prudently economized.

In the department of higher or advanced education, one of the chief subjects of public interest during the last four months has been the proposed Registration of Teachers. Many abortive efforts have been made of late years to secure some kind of organization in the secondary instruction of the country. Hitherto all that has been done in England for public education, above the elementary, has been provided either by endowments or by private and local enterprise. The state has done nothing either to provide secondary schools, or to regulate, aid, or conduct them when provided. Now, it has generally been considered that one of the first steps in the direction of organized secondary instruction would be the creation of an authentic register of qualified teachers. The analogy of the medical profession has been frequently referred to, and the Medical Registration Act, which has been long in force, has been generally regarded as a precedent. That Act, as is well known, established a permanent Medical Council composed of representatives of each of the great Medical Corporations' interests, and confides to this council *inter alia* the power to prepare, year by year, an authorized list of qualified practitioners. At the same time it enacts that unregistered persons may not recover fees; and it imposes serious legal penalties on those who engage in medical practice without such qualification. It is contended by some of those who are most earnest in their efforts to make teachers an organized profession, that a similar course should be pursued in regard to all persons professing to teach; and that all such persons should be required to give evidence of their qualification and to be registered, and that unregistered persons should, if not actually forbidden by law to become schoolmasters and mistresses, at least be disabled by law from recovering fees.

To this argument it is replied that the analogy between the medical and the teaching professions is, to say the least, very imperfect. There are in medicine and surgery well-known and long-established professional corporations—the Royal Colleges of Physicians and Surgeons, the Society of Apothecaries, and the universities which grant the degrees of M. D.—and all of these have been empowered for many years past to grant licenses to practice. There is no grievance in a law which forbids any man who is not provided with a diploma from one of these authorities to practice the medical profession. But in the teaching profession no similar system of diplomas can be said to exist. There are university degrees for teachers of the highest rank, and these are often regarded as sufficient, although after all they do not afford evidence of any knowledge of the art or philosophy of education. And in the elementary schools which receive aid from the Parliamentary grant, it has long been required that the master or mistress should possess a certificate of competency, which, though it does not attest any very high scholastic attainments, is always a very real testimony to the holder's professional experience and power to teach. But between these two classes—those engaged in the highest and in the primary schools respectively—there is a large class of intermediate teachers who possess no certificate or diploma whatever; and who, however well qualified by natural aptitude or by proved success, have had until very recently no means of obtaining official recognition; simply because there was no tribunal or public authority which had the power to award it. The universities of Cambridge and London, Edinburgh and St. Andrew's, and the College of Preceptors, have of late instituted very good examinations in the art, theory, and history of teaching: and these are held in increasing esteem by young men, and especially by women, now entering the profession. But from the rank and file of teachers now employed in secondary and intermediate schools, whether public or private, it would be manifestly unfair to exact any new test; and in their case a registration bill which imposed upon them any legal or social disqualification would be a serious injustice.

These being the preliminary difficulties in the way of a general measure for the training and registration of teachers, it is interesting to know that two bills of a more or less tentative character were introduced by private members in the last session of Parliament—the one by Sir Richard Temple, understood to have been prepared by the College of Preceptors, and the other by Mr. Acland, who was the representative of the large and increasing body of schoolmasters and mistresses who compose the Teachers' Guild. Both measures provided for the formation of an educational council composed of representatives of the Crown, the universities, and the general body of teachers; and both contemplated the preparation of a scholastic register, which should ultimately contain the name of every qualified teacher, and there was also in both bills a further provision that after a certain period no unregistered person should be legally entitled to recover fees. The government adopted a course not unusual in such cases, and referred both bills to the consideration of a select committee composed of members from both sides of the house, and presided over by the vice-president of the council. This committee examined a great number of witnesses, and has recently published the evidence so collected, and a short report of its own. To American readers analysis of the evidence offered would be uninteresting and would certainly appear to be lengthy and tedious, especially as at present the whole question, though advanced a stage, has not come within what Mr. Gladstone calls the "sphere of practical politics." Whenever a measure of this kind is proposed by the government, and either becomes or is likely to become added to the statute-book, your readers may like to know something more of its provisions and of the nature of the problems which it purports or intends to solve. At present it may suffice to record that the committee, after hearing evidence, expressed a general approval of the principle affirmed by both bills, and summed up their report with these recommendations: (1) That registration of teachers in secondary schools is desirable; (2) that existing teachers should not be put on the register merely as such, but should not suffer from any legal disability; (3) that both existing teachers and future teachers should be admitted to the register on producing such evidence of intellectual acquirements and teaching capacity as might be required by the council; (4) that additional facilities are required for the training of teachers in secondary schools; (5) that any educational council to be established for the furtherance of such registration should be composed of nominees of the state, representatives of the universities, and members elected by the teaching profession.

These recommendations of the select committee were presented to Parliament at the close of the last session, and have not yet been embodied in a bill. It remains to be seen whether the legislature will look favorably on the proposal, and whether there is any chance of carrying into effect a scheme drawn on these lines. But although in the coming session it is not unlikely that other measures of more pressing and urgent interest may occupy the attention of both houses, it is tolerably certain that the whole question of the better training of teachers, the registration of their qualifications, and the better co-ordination of all the agencies at work in England for advanced education, will ere long receive increased public attention.

J. G. FITCH.

LONDON, ENGLAND.

VII.

EDITORIAL.

The vexed question as to the next meeting-place of the National Educational Association has been settled. Saratoga has been designated. The executive committee, in whose hands this decision rested, gave long and patient attention to the claims of Helena and Seattle, that were so ably pressed upon them, and finally came to the conclusion that the highest interests of the Association would be best served by holding the meeting of 1892 at some accessible point in the East. Saratoga commended itself by the excellence of its hotel accommodations, the attractiveness of its natural surroundings, and the cordial invitation tendered in its behalf not only by the local authorities, but by the educational leaders in the State of New York. The educational journals, such as *The School Bulletin*, the *Public School Journal*, and *Intelligence*, that represent not the irresponsible opinions of hysterical individuals, but the sincere convictions of the men and women who make these national meetings really valuable, advised the action that has been taken, and the leading educational workers of the South, West, and East were of the same mind. The decision was made peculiarly difficult by the enthusiasm and energy displayed by the cities of the extreme Northwest in their own behalf; but that it was wise can hardly be doubted even now, and will be abundantly proved by the event.

The choice of Saratoga as the place of meeting in 1892 makes it both possible and easy to construct the programme so that the gathering shall be one of unusual significance and value from a strictly educational point of view. There is a very general desire for this throughout the country. It has been said, but by no one with any claim to be taken seriously, that the least important feature of the meetings of the National Association is the bringing together the most distinguished and experienced educators in the country. One would suppose, however, that a successful educational meeting must center about just such persons. A traveling menagerie or a picnic could safely dispense with them. That college presidents and professors, superintendents and principals, and ambitious class-room teachers, will gather in large numbers at Saratoga, is certain; whether or not those attend whose educational interest is over when the reduced railway rates are secure for a summer jaunt, is a matter of comparative indifference. It is as yet altogether uncertain what will become of the National Association meeting in 1893, in view of the Chicago Exposition, with its great array of educational congresses and educational exhibits. For this reason it is doubly important that the meeting at Saratoga shall be attended by a large number of thoroughly representative educational men.

The Comenius celebration, already announced in these columns, has been definitely arranged for, and in such a way as to secure the attention and co-operation of a large number of school-men from all parts of the country. The committee having the celebration in charge, after conference with Superintendent Sabin of Iowa, president of the Department of Superintendence for the year, have decided to incorporate it in the programme of the Department of Superintendence at its meeting to be held in Brooklyn on February 16, 17, and 18, 1892. The evening of Thursday, February 18, is to be devoted to commemorating the three hundredth anniversary of the birth of Comenius, the exact date of his birth being neglected because of the greater significance of the event and the desirability of having the presence and interest of the superintendents. The exercises, as planned, will consist of three papers: one dealing with the private life and personal characteristics of Comenius; one describing his text-books, with illustrations of representative pages and cuts from his *Orbis Pictus* and *Janua Linguarum;* and one estimating his permanent services to educational thought and practice. The celebration will doubtless attract very general attention, and serve to arouse a new interest in the life and writings of this educational reformer of the highest rank.

The close connection which exists in the United States between politics and education is more than unfortunate; it is unintelligent. At the recent November elections many hundreds of thousands of votes were cast that affected directly the welfare of the educational system of at least two great States, but—it is entirely safe to say—without so much as a thought being given to that fact. Questions of party preference, of personal administration, modes of taxation, or of financial policy, determined how the votes were to be cast; the schools had to await the fortunes of a war conducted along lines entirely foreign to them and their interests. In Iowa, for example, the State superintendent of public instruction is elected by the people. The present incumbent, a man of distinguished services and wide reputation, should have been nominated by every political party that held a convention. What his political views are, is a matter of no importance. His office is administered on educational, not political lines. But party candidates were named against him, and the result of the polling is that the political views of his colleagues did not secure the popular indorsement. It seems probable at this writing that he is, therefore, to be superseded in office.

In the great State of New York, with a common-school system of magnificent extent and importance, a similar state of affairs existed. The term of the present superintendent of public instruction expires in the spring of 1892. The office is filled by the legislature, both houses sitting in joint meeting for the purpose. Unquestionably, thousands of persons, who would never think of disturbing the present admirable school administration, voted for legislative candidates whose first thought would be to fill the office with a man whose views on questions of State and national politics agreed with their own. For several days the result hung in the balance, and the teachers in every county of the State anxiously awaited the final announcement of the voting. Why? Simply because it meant either the continuance in office of the present superintendent, or his displacement by an untried successor. During his six years of office Judge Draper has done more for the common-school system of the Empire State than any administrative officer ever before accomplished. He has achieved a reputation as an educational statesman, one of the very few that this country has produced. He occupies a commanding position before the country. Many improvements remain to be accomplished, that he can accomplish more speedily and effectually than anyone else can possibly do. The system that admits his displacement for political reasons is an insane one. The makers of constitutions, and the framers of laws, must be taught the necessity of providing the schools with officers not subject to removal for reasons having no relation whatever to educational policy and administration.

Last winter a course of lectures for college teachers, and those who proposed to become such, was given at the Johns Hopkins University with a large measure of success. The topics selected were practical, and the mode of presentation adopted was more or less informal, resembling a conference rather than a set lecture. This year the same plan is to be followed, and the series of pedagogical conferences is already in operation. It is not at all impossible that the result of this experiment may be the rehabilitation of education as a subject of university teaching and study at the Johns Hopkins. No institution in this country trains so many teachers of collegiate and secondary grade as the Baltimore university, and it is eminently fitting that their equipment should include not only accurate and independent scholarship, but an acquaintance with the educational forces and problems of the time.

It is a pleasure to call attention to the following resolutions that were passed at the thirty-fifth annual meeting of the Association of Colleges in New England, at its recent meeting. The resolutions have been laid before the faculties of the several colleges represented in the association, and are to be acted upon next year. The resolutions, with their preamble, are as follows:

"The Association of Colleges in New England, impressed with the real unity of interest and the need of mutual sympathy and help throughout the different grades of public education, invites the attention of the public to the following changes in the programme of New England grammar schools, which it recommends for gradual adoption:

"1. The introduction of elementary natural history into the earlier years of the programme as a substantial subject, to be taught by demonstrations and practical exercises rather than from books.

"2. The introduction of elementary physics into the later years of the programme as a substantial subject, to be taught by the experimental or laboratory method, and to include exact weighing and measuring by the pupils themselves.

"3. The introduction of elementary algebra at an age not later than twelve years.

"4. The introduction of elementary plane geometry at an age not later than thirteen years.

"5. The offering of opportunity to study French, or German, or Latin, or any two of these languages, from and after the age of ten years.

"In order to make room in the programme for these new subjects the Association recommends that the time allotted to arithmetic, geography, and English grammar be reduced to whatever extent may be necessary.

"The Association makes these recommendations in the interest of the public-school system as a whole; but most of them are offered more particularly in the interest of those children whose education is not to be continued beyond the grammar school."

These resolutions represent a direct and intelligent attempt on the part of the higher institutions to guide and control the lower. It is in this way that the educational system of Europe has been made so effective. Hitherto in this country, particularly in the East, this course has not been followed. That it is now being more generally entered upon, is one of the most encouraging signs of the times. There is one detail, however, in which the resolutions above cited are distinctly open to criticism. They depart from the most authoritative pedagogical standards in counseling that the study of algebra be begun before that of geometry. It must be very bad teaching indeed that postpones the study of simple and intuitional space-relations until after some mastery of algebraic symbols and processes has been gained. This error should not be allowed to stand when the resolutions come up for final action.

This year, as last, President Adams, of Cornell, is the first of the university presidents to put his annual report in the hands of the public. The report and its appendixes show in detail the operations of a great educational institution. It is noted as a significant fact that every year a larger number of students come to Cornell from other colleges. This is true also at Harvard, and perhaps elsewhere. Whether college presidents and faculties choose to recognize it or not, this tendency is only one evidence of the existence of the distinction that is being slowly but surely drawn between the colleges and the universities. It is futile to object that the "old college" must not be partitioned between the school and the university. New educational conditions demand a readjustment of the old institutions. During the later years of their college residence, the ambitious, enthusiastic students are certain to gravitate more and more rapidly toward the large universities, where special libraries, laboratories, museums, seminary rooms, and highly-trained special teachers are provided for them. President Adams, more far-sighted than some of his contemporaries, recognizes this fact, and is shaping Cornell's development accordingly.

VIII.

REVIEWS.

Outlines of Psychology.—By HARALD HÖFFDING. Translated by MARY E. LOWNDES. London and New York: Macmillan & Co., 1891, pp. xi, 365.

This volume makes a most valuable addition to the psychological literature in which our language has always been rich and now grows rapidly richer. Though not from the original Danish, the translation is from the German translation which Dr. Höffding has accepted as adequately representing the original. And Miss Lowndes is to be congratulated, not only on the accuracy of her rendering, but on its good style, its simplicity, and its clearness—features which also characterize the German translation of Dr. Bendixen.

This is not the place for an exhaustive notice of Professor Höffding's volume. What is desired is simply an estimate of its value as a text-book. But this cannot be determined without settling the kind of pupils who should study psychology. Here there may be differences of opinion. But since, in the development of mind, observation is earlier than reflection, it would seem that the sciences of nature should precede psychology in so far as it is an introspective science; while, in so far as it is an experimental science, it is plainly dependent upon physiology, physics, and chemistry. Again, the humanistic disciplines—language, literature, and history—appeal to the youthful mind much earlier than psychology, for which they pave the way, and to which they furnish important data. In an ideal scheme of things, therefore, there should be no teaching of psychology in the schools and academies, and none in the colleges and universities before the junior or sophomore year, at which point students should be about nineteen years of age and tolerably well grounded in the elements of physical science and humanistic culture.

For such students, under the guidance of a well qualified teacher, Höffding's *Outlines* seems to me a quite ideal textbook. It is not easy to particularize where all is so good. The author knows and rigidly observes the limits of psychology as a science, yet he sends many a flash of light on the avenues that lead at the one boundary to physiology and at the other to metaphysics. The exposition, never obscure, is often brilliant, and is always compact with facts. Indeed the wealth of the author's knowledge is as surprising as his facility in the command and presentation of it. He is at home in the older semi-metaphysical and in the newest experimental and physiological psychology, whose teeming literature he uses with insight and great skill. Principles are supported by facts, and facts are informed with principles. The author's psychological talents and knowledge are supplemented by an extensive acquaintance with literature; and nothing could be happier than the illustrative citations from Goethe and Shakespeare, to say nothing of Longfellow and other greater and lesser writers. Students are to be congratulated on having the quintessence of the science of psychology presented in a fashion so orderly, so fresh, and so attractive. Mr. Sully's well known work is larger, but it is more lightly freighted with facts, especially with the newest experimental results. In this respect it would be difficult for any text-book to surpass the scholarly *Outlines* of Prof. Ladd; but whereas Prof. Ladd restricts his domain to physiological and experimental psychology, Prof. Höffding ranges over the entire field of psychology. His work reminds one in many ways of Prof. Murray's admirable *Handbook*. Both writers are masters of a clear and pleasing style; both have the faculty of simple and orderly arrangement and classification; both have written out of the fullness of a mature knowledge manuals adapted to beginners. The difference is that whereas Prof. Murray always keeps the beginner in view, as it were, and aims primarily at elementary matter and simple treatment, Prof. Höffding aims primarily at fullness and compactness of content, yet never so as to forfeit perspicuity. It would be overstepping the mark to compare the works to first and second readers in psychology, yet a very youthful student might think the comparison not altogether inapt.

One criticism only I will venture to make on Prof. Höffding's excellent manual. His sense of proportion is everywhere so marked that I am greatly surprised to find nearly as much space given to the psychology of feeling as to the psychology of cognition. Had it been otherwise, a somewhat fuller treatment might have been given with advantage to sensation and especially to perception.

J. G. SCHURMAN.

CORNELL UNIVERSITY.

A Conference on Manual Training. The Papers read and a phonographic report of the Discussions at the Sessions of a Conference on Manual Training, held at Boston, April 8–11, 1891.—Edited by Mrs. ISABEL C. BARROWS. Boston: The New England Conference of Educational Workers, 1891, pp. 182.

The Conference of which this volume is the record, marked an important stage in the history of the manual training movement in the United States. The Conference itself was more noteworthy than its constituent parts. There were no theoretical papers of importance, and many of the purely pedagogical questions raised had been authoritatively settled some time before. But the reports of individual experiences, the remarkable exhibition of school work, and the approval given to the whole movement by many leaders of opinion from outside of the ranks of the schoolmasters, made the occasion one of decided interest and value.

It is very significant that the vociferous opposition to manual training, as a non-intellectual and demoralizing factor in the school, which was so familiar five years ago, played no part in the Conference. Indeed it no longer exists. As the more temperate and scientific advocates of these new branches of study have made it clear, both by theoretical argument and practical demonstration, that manual training is mental training, and that it comes in, not to displace but to supplement and render more effective the subject-matter of the older curriculum, the former opponents of the movement have become its friends; and no well-informed person doubts today that manual training has been, and is, an immense influence for good in the public-school system of the country. To this fact the Boston Conference was a willing witness.

The fact that the speeches recognized that manual training is a broad name for a group of subjects, and not merely the technical designation of a specific set of exercises, will not escape the notice of the careful reader. This, too, is in accord with the best thought on the subject. It was in this spirit that Sloyd, form-study and drawing, shop-work, color, and the kindergarten were all touched upon. The economists, too,—who are one of these days going to play a larger part in educational discussions than they do now,—were represented by Professors James and Patten, both of whom read papers that were full of information and suggestion.

Save in the one matter of Sloyd, the very extensive European experiences with some phases of manual training were not sufficiently taken into account, particularly by those who doubted whether a set of manual exercises for pupils in the grades between the kindergarten and the high school had yet been devised. A careful and accurate presentation of the best manual-training work in elementary schools abroad, would have been a decided addition to the papers read. Perhaps, however, a place will be found for that at the next Conference—for one valuable experience-meeting of this kind only paves the way for others.

N. M. B.

La Escuela Primaria en Francia. Informes sobre el Congreso Pedagojico Internacional y la seción escolar francesca de instrucción primaria en la Esposición Universal de Paris de 1889.—Por el Dr. J. B. ZUBIAUR, Inspector de Colejios Nacionales y Escuelas Normales. Buenos Aires: Taller Tipográfico de lo "Penitenciaria," 1891, pp. 345.

There is in this book some declamation convincing one that Buncombe County is not entirely comprised within the limits of North Carolina. This blemish apart, the book is a notable contribution to current pedagogic literature. It comprises two reports, the first on the International Pedagogical Congress, and the second on the French Primary School exhibit, at the Paris World's Fair of 1889. In the exhibit, every school was to show its material equipment, methods and processes, and obtained results. Some schools did and some did not, and the whole educational exhibit was scattered badly. If the French, with their passion for official organizing machinery, did so poorly by their schools, we, with our Anglo-Saxon habit of pushing ahead, contemptuous of symmetrical neighborhood, will bungle badly at Chicago unless matters are carefully ordered from the start. The teachers of the country ought to be wide-awake from the moment the plan of the Chicago Exhibition begins to be mapped, to protest against the educational exhibit being tucked away piecemeal in odd nooks of various departments. However, France succeeded in making an extremely favorable showing. In 1837, the number of recruits able to read and write was 53.3 per cent.; in 1887, 89.9 per cent. The primary normal schools for men have increased from 74 in 1872 to 90 in 1889; those for women from 79 to 86. Note, by the way, the relatively greater increase of male normal schools. Three schools for the training of normal-school teachers have been established, institutions the very need for which we do not feel. Public primary schools, including Maternal schools, feebly and unsuccessfully trying to be Froebelian, were 59,392 in number in 1872; 70,193 in 1888; school age from two to thirteen. The number of primary teachers in the public service rose from 79,239 to 105,600; that of the students from 3,835,991 to 4,492,894 viz., boys from 2,245,810 to 2,487,945, girls from 1,590,181 to 2,004,949. Note the ratios of sexes. The attendance of girls has increased relatively faster. That is the gratifying fact. The other, not so gratifying, is that it is not yet nearly equal to that of the boys. The total budget for 1889 was 175,400,000 francs, the state paying over 90 millions, the departments over 15½, the communes over 69½. Note the preponderance of the state and the insignificant contributions of the departments—about 9 per cent. Of the latter $14\frac{9}{10}$ millions were obligatory appropriations, while of the state appropriation 3⅓ millions were optional. Of the 69½ millions communal appropriations, 39 millions were optional. Psychological comment is unnecessary. While we have increased our parochial schools, France, a Catholic country, be it remembered, has done the reverse. The schools have increased from 75,635 in 1882 to 80,209 in 1887, an increase of 3711 public and 863 private schools in five years. But while the lay schools have risen from 51,730 to 57,611, the clerical schools have fallen away from 11,265 to 9097. The teachers numbered 103,008 for public and 42,660 for private schools in 1887. The number of pupils had risen from 5,341,211 in 1882 to 5,526,365 in 1887, an increase of 3 per cent. in five years. The percentage of attendance on enrolment was 91 in December 1886 and 88 in June 1887. The most important book exhibited was Buisson's Pedagogical Dictionary of Primary Instruction. But, after all, statistics are purely external and school statistics are especially superficial. The real question here is as to spirit, methods, and results which cannot be statistically represented. This question Dr. Zubiaur attempts thoroughly to investigate. Unfortunately, this, the most valuable part of his report, is unavailable for Anglo-Saxon readers until a large personal equation has been constantly taken into account. Dr. Zubiaur's purpose in writing the book is polemical. Even Germans admit that Tacitus painted their savage ancestors in somewhat romantic colors. The educational Tacitus of the Argentine Republic attains a palpably similar effect as regards

French Primary Education. This tendency is intensified by his standard of comparison. Starting with a knowledge of Argentine education, his outbursts of enthusiasm at what he sees at Paris are at times almost pathetically naïve. Yet when the uniform strain of laudation is broken by what seems pretty nearly a slip of the pen, as when he admits that some exhibits show the hand of the master rather than the student, the crack in the veneer lets us see a somewhat different wood underneath. Still France has done nobly, especially in manual training and object teaching. She is worthy of all praise. But it is impossible within these few lines to distinguish the fact from Dr. Zubiaur's way of putting it. One word on the International Pedagogical Congress. Germany of course, was excluded, which, in a Pedagogical Congress, somewhat limits the idea of internationality. Stated statistically, this is the amount of internationality remaining: Of 197 memorials sent to the committee on organization for redaction, six were contributed by foreigners. At the opening of the Congress, there were present more than 1500 French teachers and about 100 foreign delegates. As the voting was by absolute majorities, it can easily be seen whether the solutions reached on the three questions submitted—professional education in the primary school, the extent to which women should be employed in primary education, and practice-schools attached to normal schools—were French or international. When an English delegate expressed a hope that an International Educational Association might result from the Congress his idea was good, but putting it into practice is quite another matter.

William J. Eckoff.

High School,
Jersey City, N. J.

Sir Walter Scott's Marmion.—Edited by Mary Harriott Norris. Boston and New York: Leach, Shewell & Sanborn, 1891, pp. iv, 281.

Shakespeare's As You Like It. With an Introduction and Notes.—By K. Deighton. London and New York: Macmillan & Co., 1891, pp. xxii, 164.

Literature is now read in schools, both high and elementary, as well as in colleges. A great demand has thus been created for the works of classical authors, edited for school use. Publishers have not been slow to meet the demand by bringing out editions of such works as seem to be suited to the purpose.

Of these works some are well edited and some are poorly edited. In the latter class I am constrained to place Miss Norris's edition of Scott's *Marmion.* The first requisite of a school edition of one of Scott's poems is an account of the author that will give the young reader a vivid idea of his personality and his genius. A brief biography Miss Norris attempts, but it is not a success. His personality in youth and early manhood is, indeed, brought out with sufficient distinctness, because the account is given in the master's own word; but when Miss Norris comes to characterize his genius she is sadly at fault. She seems unable to state her thought in clear and simple language. Most children will puzzle a long time over the following, before they gather its meaning; "He was sufficiently free from the unhappy egotism which marks so many authors to realize when he had exhausted the vein from which was wrought 'The Lay,' and 'Marmion' and the 'Lady of the Lake.'" The sentence is both awkward and obscure. Again, what is to be thought of this? "The genius of a man who could write poems like these, and novels like 'The Heart of Midlothian' and 'Guy Mannering,' must touch the imagination as epic in its proportions, and ally its possessor in versatility with Shakespeare and Goethe?" What will a schoolboy understand by *epic?* Can genius, in any proper sense of the term be spoken of as *epic?* And is versatility the chief characteristic of Scott? Or of Goethe? Or of Shakespeare? If they had been merely versatile, they would long since have sunk into oblivion.

The next requisite of a school edition of one of Scott's poems is a historical and critical introduction that will throw light on the manners of the age and the land in which the scene is laid, explain the meters, and place the student *en rapport* with the chief characters. Such an introduction is entirely wanting. Of Miss Norris's annotations it may be said that they are of the Gradgrind description: they abound in facts. That these facts embrace a prodigious amount of historical and archæological knowledge, may not be questioned; but such knowledge is for the most part worthless, except as it throws light on what might otherwise be obscure in the poet's pictures. If the explanation of a historical or geographical allusion does not heighten the effect of the poetry, it would be better omitted altogether. Now, most of Miss Norris's explanations are calculated, not to heighten the effect of the picture, but to destroy the illusion it would naturally produce. Take for instance the beautiful passage beginning:

> Oh, for a blast of that dread horn,
> On Fontarabian echoes borne,
> That to King Charles did come,
> When Rowland brave, and Olivier,
> And every paladin and peer,
> On Roncesvalles died.

Here are the notes:

"St. 33. *Fontarabia.* 'A fortified town of Spain in Biscay, on the boundary between France and Spain, etc.'"

"St. 33. *Roncesvalles.* A valley in Navarre, where Charlemagne's army, in the eighth century, was defeated by a combined force of Arabs, Navarrese, and French Gascons, etc."

For taking the wind out of the sails of poetry, commend us to such notes as these. It is only too evident that Miss Norris knows neither how to edit Scott nor how to prepare annotations that will be stimulating to the student and helpful to the teacher. It is a minor fault, but one that should not occur when there are so many excellent models to imitate, that the plan of reference between the text and the notes, which are at the end of the book, is so defective that it is quite difficult to find a note when it is needed.

Of a very different character is Mr. Deighton's edition of Shakespeare's "As You Like It." The introduction is a graceful piece of writing and supplies just the knowledge that a young student needs for understanding and appreciating the play. The notes are clear and helpful; but, while the editor has avoided the fault of being too technical—the fault to which Shakespearean annotators are all too prone—it may well be doubted whether he has not fallen into the error of explaining too much. Nowhere does the maxim that a child should be told nothing it can find out for himself, apply more fully than in the critical reading of literature.

W. H. M.

BROOKLYN, N.Y.

A Commercial Geography. For Academies, High Schools, and Business Colleges.—By JOHN N. TILDEN, M. A., M. D. Boston and New York: Leach, Shewell & Sanborn, 1891, pp. 187.

This small quarto, fresh from the press, aims to present in a more comprehensive and systematic manner than is usual to the ordinary school geography, the leading facts of the world's productions, industries, and commerce. From the author's point of view we should teach our boys more of the "facts bearing upon the active commercial questions of the day." This is good in the abstract.

Compared with the study of political economy, civics, physics, chemistry or history, the study of commercial geography is pre-eminently more practical. Such is the author's opinion, but many good teachers will dissent from it. That some knowledge of the world's commerce and of the various industries of mankind is essential to a symmetrical education, no one will deny. That any large part of the boy's school life should be spent in memorizing the natural and artificial productions of his own country even, not to say those of foreign countries, is hardly a debatable question. The schools may fairly leave some things for after acquisition. So much for the aim of the book.

When we come to examine it carefully we can but admire the author's good judgment in the selection of "leading facts" where such a wealth of material is at hand. The book is exceedingly well written and in parts thoroughly interesting, features somewhat rare as school geographies go. The introductory chapters upon mathematical, physical, and political geography should be stricken out. They contain nothing but the ordinary definitions which every high-school boy is presumed to know. The most unique and interesting chapter is that upon Commercial Highway, Division of Labor, Money, Transportation, Ocean Routes, etc. There is a lamentable deficiency in maps and charts which should be remedied in a future edition. No one to-day would think of teaching without them. The few given are excellent. More can be learned in one hour from the map on page 53, showing the mineral resources of the United States, than from days of study of the textual matter further on. Taken as a whole Dr. Tilden's work is worthy of the highest commendation. There is no other commercial geography in English to compare with it.

A. B. P.

A Complete Lexicon of the Latinity of Cæsar's Gallic War.—By E. G. SIHLER, Ph. D. Boston: Ginn & Co., 1891, pp. 188.

Students of Latin literature have for so long a time acknowledged the superiority of the Germans in all matters pertaining to classical learning and criticism, that they will note with sincere pleasure the successful invasion of this field by the author of "A Complete Lexicon of the Latinity of Cæsar's Gallic War." The preparation of such books as this involves so much drudgery that there is no danger that their number will ever be too great, and yet their value is such that this admirable volume will be a welcome addition to the labors of Merguet, Mensel, Menge and Preuss.

The size of this little work is not at all commensurate with the immense amount of time and labor which must have been spent upon it, nor does it prepare us for the erudition displayed in it. It is based upon Holder's work and "aims to furnish an exhaustive vocabulary and *usus loquendi*, along with the greatest possible compactness." Every word used by Cæsar is given, all the various applications and associations of each are tersely, yet precisely explained, all the passages containing them are located, and in nearly all cases, quotations from the text, logically grouped, are given at sufficient length to indicate the context. All the different readings of the many textual critics of Cæsar are given, and the more important emendations noted. There is besides a wealth of exegetical comment.

Whether the author realizes all that he promises in his title is extremely doubtful, but all must confess that he gives us more than the size of the book would lead us to expect. The work presupposes an acquaintance with the text and it may, therefore, seem unnecessary to suggest that while quotations are given for almost every occurrence of a word, they are in many cases too short. In some cases a closer adherence to the forms referred to in the text would seem desirable. Then, too, for the location of some words the reader is referred to other words. These references are sometimes vague, and even misleading. This is, however, due to the effort of the author to condense. In preferring to confine his work to as small a compass as possible without impairing its usefulness, rather than by quoting more fully to make a bulky, and hence less convenient, volume, the author must be commended, and the work of condensation has, in the main, been admirably done. There are, as the author suggests, orthographical inconsistencies, but they are, fortunately, few. Contrary to what one would expect in a work of this character, typographical errors are remarkably rare.

While the lexicon will appeal most forcibly to teachers and advanced students, it will be extremely useful to those who are reading Cæsar, or are studying his simple, yet vigorous style. All who are interested not only in the study of Cæsar's writings, but in exact Latin scholarship, will welcome the work as a most valuable contribution to the literature of classical criticism.

HENRY SNYDER.

HIGH SCHOOL,
JERSEY CITY, N. J.

Select Essays of Macaulay, Milton, Bunyan, Johnson, Goldsmith, Madame D'Arblay.—Edited by SAMUEL THURBER. Boston: Allyn & Bacon, 1892, pp. xiv, 205.

Mr. Thurber has earned the thanks of all who are trying to improve the teaching of English in our own preparatory schools, by this unusually helpful and sensible edition. For more than one reason Macaulay is an especially suitable author for school study. The brilliancy and assurance of his style, its impetuous dash and freedom of movement, still captivate youthful readers, untouched by the greater staidness and severity of the prevailing fashion. The qualities which made Macaulay the great popularizer of literature and history among the middle-class reading public of his time give his work a similar value in the schoolroom. Then the innumerable allusions which his enormous literary equipment made possible afford the student unusual opportunities for research and collateral reading. The treatment of these allusions in the notes forms one of the most conspicuous merits of this edition. Mr. Thurber defined his position concerning the annotation of English classics for schools, in an article in the *Academy* for May, 1889. He deprecated the tendency to burden the text with notes which too often merely give the pupil what he should be trained to find out for himself. He urged that the ideal method is a reference library in every school, and the English classics in good type, expurgated and without notes. In Mr. Thurber's words: "Pupils should dip their own water from the springs among the rocks, and not depend upon a modern faucet which runs whenever you turn it on." While at first sight Mr. Thurber seems to have departed from this position in giving us an annotated edition of an English classic, examination of the notes shows that he has really taken this manner of forwarding the method he formerly advocated. The notes aim to point the pupil to "the springs among the rocks," to stimulate and direct research instead of rendering it superfluous. Thus, instead of attempting to explain what is meant by "the fooleries of Della Crusca," the editor contents himself with the following suggestions: "Look up this name in Adams' Dictionary of English Literature. See also Encyclo. Brit. under the word Academy, Vol. I, p. 73. Read up also on William Gifford. If you read French and have access to Littré's large French Dictionary, see what he says under the word Crusca, p. 196." A classic so edited could be made to yield surprising results in the hands of a competent teacher, provided the necessary reference books were readily accessible. It is obvious that the method of teaching English Literature advocated by Mr. Thurber, and now illustrated by notes similar to the one just quoted, would do much to forward that intelligent and scholarly use of books, and that ability to work out of leading-strings, which the wise teacher makes it one of his chief objects to develop. A series of English classics well edited, in accordance with Mr. Thurber's ideas, would tend to reform the teaching of English Literature in our schools.

HENRY S. PANCOAST.

PHILADELPHIA, PA.

Plane and Solid Geometry.—By SETH T. STEWART. New York: American Book Co., 1891, pp. x, 406.

The author in his preface states distinctly enough the three purposes of teaching geometry: logical training, practical application, scientific application. He goes on, however, to indicate pretty clearly that the first purpose is by far the most important one in his own mind; for he says hardly a word more in the preface about the two other purposes, which are dismissed in a single sentence.

It is true that a majority of pupils gain no other advantage from geometry than a logical training. There is a very insidious fallacy which has much influence on many teachers: that, because formal education is an important purpose, it should govern the text-books, and the other reasons for studying the subject should have no large influence. Quite the contrary is the case; the best text-books, from Euclid down, have been written by eminent mathematicians who have been also admirable teachers, have selected the matter according to the needs of theoretical and practical science, and have thus given enough for the educational purpose. In other words, all geometry is and must be logical, and the practical uselessness of a proposition is no proof of its educational value. The ideal text-book should contain matter which is selected for its scientific and practical importance; the selection should be made with great care and intelligence, so as not to omit the most essential and far-reaching parts of the subject; and to accomplish this the author should have a wide acquaintance with mathematics, both theoretical and practical.

The book before me does not exhibit such a wise and careful selection. Many important parts of the subject are lightly treated, or even entirely omitted, while a range of rather difficult propositions of no special practical value is introduced, apparently from foreign text-books. The reviewer has been unable to find a standard and very important proposition relating to the segments of the side of a triangle made by the external and internal bisection of the opposite angle; has noticed the inadequate treatment (p. 246) of the measurement of the circle; and has vainly attempted to make out from the book what is meant by a "pedal triangle" (p. 289). The arrangement of the plane geometry differs from that which is usual, on the plea of a better collocation of the matter which refers to one subject. It seems to an old-fashioned teacher a pity to treat similar triangles in Book 7, now that proportion is so familiar to our pupils from a quite early age. Euclid introduces it in Book 6, but his Books 7 to 10 relate to arithmetic, and his order is out of date at present. Moreover, there is a cross-division which is by no means a help to the scholar, in dividing Books 1 to 4 (straight lines and angles, triangles, quadrilaterals, circles) according to the subject-matter, and Books 5 to 7, proportion, mensuration, plane figures, similar figures, according to methods of treatment.

The reviewer has no doubt that a skilled manipulator of boys can use this book to enable his pupils to pass examinations, even at Harvard; but he has very grave doubts whether they will be so well taught geometry by its help as from the books of the best reputation which have preceded it.

TRUMAN H. SAFFORD.

WILLIAMS COLLEGE.

IX.

EDUCATION IN FOREIGN PERIODICALS.

Professor Laurie on Present Educational Problems.

[The following extracts are taken from the presidential address of Professor S. S. Laurie of Edinburgh, at the last annual meeting of the Teachers' Guild of Great Britain and Ireland, as reported in the London *Journal of Education.*—ED. EDUCATIONAL REVIEW.]

Curriculum of Secondary Schools.—"A multitude of subjects pressing for recognition in the school, and a multitude of deadening and oppressive examinations following close upon the teaching—these are the evils (as we all know) under which secondary education groans in these days. It becomes us to consider whether, under modern conditions, we can secure for teachers and scholars some of the concentration which was the chief merit of the schools of former times. No sound educationalist is an encyclopædist. On the other hand, the educationalist who holds that we can prepare the youth of the country for the work of the twentieth century by means of a little of one dead tongue and less of another, must be accounted an anachronism. We cannot allow boys and girls of eighteen years of age to pass out of our hands as educated who are ignorant of the national and world life which they inherit, or of the living nature in the midst of which they are placed, and which they have to bend to their purposes. And yet we cannot teach everything, and must be often perplexed in presence of the numerous subjects—each with a certain completeness in itself—which now claim admission to the school curriculum. Which and how many of the branches into which human knowledge has now ramified shall we select for the secondary school, and how far shall we carry the study of each, are questions which not only Great Britian, but the whole civilized world may be said to be now considering.

"It is a fair question, Has the science, or theory, of education any light to throw on our darkness, or are we to grope on empirically, hastily taking up, and as hastily dropping, first one subject and then another, in obedience to the demands of an uninstructed and exacting public, and fitting those we select into the time-table as if it were a piece of mosaic? I think that theory may *help* us at least to a solution of our difficulties, if it cannot wholly solve them. First of all, the theory of education requires us to transfer our attention entirely from subjects of instruction to the minds we are instructing. This alone is a great point gained. When we take up this attitude to education, we at once see, for example, wherein lies the truth and falsity of encyclopædism. Encyclopædism is unquestionably a characteristic of a completely educated mind, but not encyclopædism in respect of the material of acquired knowledge, but encyclopædism of faculty. That is to say, a complete education should bring the mind into intelligent contact with representative studies, and representative methods of investigating truth. Encyclopædism, in the sense of universality of *faculty*, would seem to be within our reach."

What is our Telos? "Thus far there is guidance; but just at this point, theory again interposes, and asks the question, 'To what, and for what, ultimate end all this labored training of faculty?' The question will be answered by theory thus: In order that each man may do efficiently his special work as a member of society; but even this only in subordination to a supreme end—the fulfillment of the ethical purpose of human life in him. The ethical end governs all (and by ethical I mean the moral and religious). It comes to this, then, that it is *general* power of faculty we have to give, and with this, the substance and motive forces of ethical living. A leaving-examination, looked at from this point of view, consists of two questions, which have to be addressed to every pupil:

"1. The first is one question, but it has a twofold aspect. I ask a youth, on this or that point, which may be suggested by the occasions of life: What is your *own* thought, and what is your *own* utterance? The thought may be confused, and will certainly be inadequate; but we are content to find that he *thinks;* the utterance may be halting and unformed, but we are content to find that he strives, with fair success, to utter the thought in his own language—to express *himself*. But a satisfactory pass, even in this twofold examination, is a subordinate matter, though essential; for the final aim has yet to be considered—that for which all knowledge and all faculty exist—life, living, doing. There is still, therefore, a second, and, as I have already indicated, a supreme and governing question.

"2. And that question is, What are the motive forces of all your activity; what ideas inspire you; what ideal of life do you strive after, so that the best and highest in you may be made manifest in all your manifold relations to your fellow-men?

"The answer which the youth of eighteen, whose secondary course is completed, can give to these two questions, is the measure of his education. From this leaving-examination no one can ultimately escape, and if we teachers dwelt more than we do on this final testing of our work, we might, perhaps, be guided to the solution of many minor difficulties, and regard with careless equanimity much that now assumes unduly large proportions."

Language the Central Subject.—"Now, it is clear to me that if the 'supreme end' be that which alone gives significance and vitality to all our daily work, we must find, as our central subject of instruction, one which, while giving general discipline to the mental powers, with a view to mental power, will, at every step, help forward the growth of the ethical in our pupils. What is this subject? At this point, it may appear that theory deserts us, and idiosyncracies, prejudices, custom, take its place. I have discussed the question elsewhere, and I shall accordingly be excused for merely dogmatically asserting here that the answer which theory gives is that the central subject we are in search of is Language—language as a discipline, and language as a liberal course of reading in literature, history, and what else you please. By language, too, I mean the vernacular; but, inasmuch as we require to study a foreign tongue to give meaning to our own, I add Latin, as being at once our own tongue, and in contrast with it. Whatever else we may teach, all, it seems to me, must grow round this central and magistral subject—language, English and Latin."

The Place of Physical Science.—"Theory, as I understand it, largely confirms the practice of the past as regards subjects of instruction, though extending their significance and range. This may be said without depreciating the claims of physical science. While sensible of the many advantages conferred by school science, I doubt if it can give true mental discipline before the age of sixteen or seventeen. Prior to that age supremely good teaching may give, by means of concrete and experimental studies, a certain discipline as well as knowledge. But the true discipline begins only when science is taught as a re-investigation and verification of the scientific results already ascertained ; and I am disposed to think, from all I have yet observed, that only in the department of botany is this possible before the age which I have mentioned. All before this age is of the nature of object lessons—as such extremely valuable, and indeed necessary, but restricted in their educative effect. In any case, physical science, at best, has to do with inductions and deductions from sense alone, and accordingly it can never, by any possibility, have the educative effect of language, nor can it, even as an exercise in investigation, give that general power over all possible material that may be presented to the mind to deal with in the complexities of human life. The student of science is always exercising his intelligence on a limited part of human experience, while the student of language, in the extended sense, which is the true sense (any other sense being the invention of pedants), may be said to be always in contact with the whole. The humanities alone truly educate a human being.

"This, then, is the answer which theory, I think gives to the question, 'What shall I teach?' First of all, and always, language (the vernacular, Latin, and what else there may be time for)—but this in a large and liberal sense; secondly, a certain amount of pure mathematics, and, in subordination to both, the elements of physical science, giving prominence, for reasons intellectual and practical which I have not time to enter into now, in this department to physical and industrial geography. Such a course of instruction, well organized, would suffice to foster in our young men both moral and intellectual interests, and to secure a certain encyclopædism of faculty. The introduction of any other subjects is to be determined by predisposition and natural aptitude, or, it may be, by considerations of utility alone—whether the subject be Greek, French, German, advanced mathematics, or physical science. I do not think it matters much which of these are selected, if our curriculum has already assured the *education of the minds* of our pupils. Nor can there be any objection, if the general education of a boy has been sound, to devoting the last year of his stay at school to preparation for certain public examinations. This should certainly not be left in the hands of the professional coach."

The Place of Greek.—"I have been speaking of secondary education within its own limits, and without reference to the primary instruction on which it rests, or the higher education of the universities, to which it leads. The great mass of our middle-class youth have, about the age of eighteen at latest, to think of the business of life, and secondary education must not be sacrificed to the demands of the few who propose to continue their studies at universities. In like manner, primary education has its own limits, and must have a certain completeness in itself, without too much regard to the secondary instruction which only a select few can ever aspire to. In the theory of education the harmonizing of the claims of each of the three stages of education in their relations to the other stages ought not to be a very difficult problem. The question which still agitates the minds of headmasters—that of 'Little-go' Greek on entering the university, has been discussed too much from the university point of view, and too little regard has been had to the real question at issue, viz., what is our scheme of secondary education to include, as within itself rounded and complete? The dropping of Greek from the previous examinations in our universities will certainly drive Greek out of a great many secondary schools. No good end can be served by affecting to ignore or to minimize this certain consequence. And it is full recognition of the effect of the proposed change on the teaching of the schools that I hold that it ought to disappear from the 'Previous' as a compulsory subject. The result will certainly be that the number learning Greek throughout the country will be lessened, but it does not follow that the quantity of Greek, as measured by quality, will be diminished. There can be no doubt that the contrary will be the result. We shall have honest Greek when we do have it, not the pretense of it. The moral effect of this will be good—no small gain. When I spoke a few minutes ago of the ethical end of all education, I did not mean to suggest that by sentiment and moralizing we should endeavor after this end. A schoolmaster will best discharge his ethical function by securing a willing and loyal obedience to the law of the school, and by demanding exactness and thoroughness in all the work done. Now, there is a laxity and superficiality in the Greek of our secondary schools (and not in the Greek alone) which is demoralizing. If we are to teach Greek, let it be Greek. A mere pass in 'Little-go' Greek is evidence neither of discipline nor of knowledge, but rather of inexact teaching and wasted years. Indeed, if we confine our attention to the amount of Greek necessary for a 'pass' in the 'Previous,' it would be a mere superstition to advocate its retention. But, even assuming that the university requirement was practically what in theory it is intended to be, the increased stringency of the university demand would go far to empty our universities. The discipline involved in such an amount of knowledge would doubtless be valuable; but should we be justified in holding that an equally valuable discipline indicative of 'ripeness' for university study could not be obtained through other instruments than Greek? I think not. For, remember, Greek is, within the narrow restrictions of any possible 'Previous' examination, a question solely of linguistic discipline. Did it include acquaintance with Greek literature, Greek forms, and Greek life, the time could not be better employed in the interests of the education of the human mind. But within the narrow restrictions we assume, this is not in any substantial sense practicable. We must look facts in the face, and not make a pretense of doing what is beyond the powers of all save here and there a singularly apt pupil under a singularly able master. If Greek were to be continued throughout every graduation course and enter into every final examination, the question would be an altogether different one, viz., Is a competent knowledge of the Greek language, literature, and history, to be the *sine qua non* of a university degree for all? Are the acquirements demanded in the admirable *literæ humaniores* school of Oxford alone to qualify for a degree? I can well imagine many men maintaining the affirmative to this question, and finding a great deal to say for themselves. But if, as a matter of fact, such a three years' university training in Greek has already been given up as a qualification for a degree, the citadel of the position has, it seems to me, been surrendered. It is too late to discuss this question: the logic of events has settled it."

The Mediæval University Knew No Greek.—"Let us, for a moment, bring the light of history to bear on the question of compulsory Greek. When we try to estimate the true value of this contemporary question by the educational records of the past, as well as by educational theory, we are prepared, on historical as well as theoretical grounds, to assist at the death of 'Little-go' Greek without a tear, and to smile at the passionate advocacy of it by those who see in its abolition the destruction of the only barrier that stands between us and the in rush of a new tide of Gothic barbarism. For these mediæval universities, during three or four centuries, concentrated in themselves all learning, and were characterized by a brilliant activity, with no Greek and very bad Latin. The supreme questions which directly concern human life and destiny had, after a thousand years of discussion, to all seeming been finally settled by the authority of the Church. The philosophic speculation of Aristotle (but this not for a time accessible in the original tongue) then asserted itself, and dogmatism had to be reconstructed on a philosophical basis. The flash of thought produced by the contact of Greek speculation, imperfectly known, with the Christian dogmatic system, lighted up afresh the mind of Europe. Thus it was that all speculation as to the nature of mind and of things gathered round the theological schools. Theology had to make terms with Greek thought, and the effort to do so found its most brilliant exponent in the daring Abelard, and finally its consummation in the organizing mind of St. Thomas. In other parts of Europe, the old Roman law did for thought on the practical and civil side what Greek tradition accomplished on the theoretical. So, in medicine, it was undoubtedly the Greek tradition which was seized on by the active naturalistic minds of this wonderful twelfth century. But, during all this period, and indeed till about three hundred and fifty years ago, Greek did not enter into the educational system, and literature, save as represented by a few Latin classics, was practically non-existent, in spite of the literary advocacy of men like John of Salisbury. The characteristic of the Renaissance of the fifteenth century was undoubtedly the revival of Greek, but it was Greek as literature, aided by the new birth of poetry in Italy, South France, and England. In our own country, it is worthy of notice, our greatest literature owed little to Greece, except through a Latin and Italian medium and English translations, though doubtless largely influenced by the growing interest in Greek."